IGSL Limited

Punch Consulting Engineers

Priorsland Residential

Site Investigation Report

Project No. 21319

January 2019

Report

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Report on Site Investigation
For
Priorsland Residential
Development
On behalf of
Punch Consulting Engineers

Report No. 21319

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Appendices

Report on Site Investigation
For
Priorsland Residential Development
On behalf of
Punch Consulting Engineers

Report No. 21319 Date January 2019

1.0 Introduction

An investigation of ground conditions was carried out at the site of the proposed residential development at Priorsland, located within the Cherrywood development in Dublin 18. The investigation entailed the following fieldworks.

- Boreholes were constructed in a total of twelve locations using light cable tool techniques.
- Rotary techniques were employed adjacent to four of the boreholes to ascertain the presence of bedrock within the scheduled depths.
- Trial pits were excavated in an additional thirty seven locations to permit close examination of the upper soils and to facilitate the recovery of large bulk samples.
- Dynamic probing was used adjacent to each of the trial pits to obtain a measure of the condition of the sub-soils.
- Infiltration tests were performed in five locations to assess the suitability of the sub-soils for soakaway purposes.

This report contains the fieldwork records and the results of associated geotechnical and environmental tests. Also included is a discussion of ground conditions in relation to the proposed development.

2.0 Fieldwork

2.1 Boreholes

The boreholes were constructed in the locations indicated on the site plan enclosed in Appendix 8 while the descriptions and depths of the various soils encountered are shown on the boring records enclosed in Appendix 1. Also shown on these records are the depths at which samples were recovered, the results of in-situ Standard Penetration Tests, and the groundwater conditions observed during the course of boring operations.

The boreholes encountered topsoil overlying thin layers of soft to firm sandy clay. Penetration of these deposits revealed stiff gravelly clay, grading to sandy gravel with cobbles and boulders. The boreholes were terminated on obstructions, at depths ranging from 4.2 metres to 5.5 metres.

Groundwater ingress was noted at various depths and at various rates, rising in places, during the 20 minute monitoring period. A summary of groundwater observations is presented in Table 1. Because the relatively short duration of boring operations, standpipes were installed in BH02 and BH07 to facilitate long-term monitoring.

Borehole No.	Water Ingress (m bgl)	Rate of ingress	Rose to (m bgl)	End of boring (m bgl)	Standpipe
BH01A	3.4	Rapid	2.3	1.4	
BH02	2.0	Seepage	2.0		SP
BH03	1.7	Slow	1.7	1.2	
BH04	3.9	Rapid	0.8	1.3	
BH05	2.4	Seepage	2.4		
BH06	1.8	Slow	1.4	1.2	
BH07	1.2	Slow	0.9	0.6	SP
BH08	None			3.0	
BHRC01	2.8	Seepage	1.8	0.6	
BHRC02	3.8	Seepage	0.8	1.2	
BHRC03	3.2	Moderate	2.6	1.3	
BHRC04	3.1	Moderate	2.6	1.1	

Table 1

2.2 Rotary

Adjacent to four borehole locations, numbered BHRC01 to BHRC04, rotary techniques were used to penetrate the obstructions on which the boreholes were terminated, and to ascertain the depth, composition and condition of bedrock. In each location, Symmetrix open hole drilling techniques were employed to penetrate the overburden soils, changing to rotary methods on the first indication of rock in the flush returns. The rotary records, RC01 to RC04, are enclosed in Appendix 2.

The records indicate that the boreholes were terminated on obstructions within the coarse granular deposits, at depths ranging from 4.4 metres to 5.5 metres. Using open hole drilling techniques, depths of 5.0 metres to 6.3 metres were achieved, classifying the obstructing material as coarse granular soil or residual rock. Using coring techniques the intact rock was identified as medium strong to strong fine to medium grained Granite with some localised weathering.

Location	Bored Depth (m bgl)	Symmetrix Depth (m bgl)	Cored Depth	Water strike Rotary hole (m bgl)	Standpipe
BHRC01	4.4	5.2	5.2 to 14.5	4.9	
BHRC02	4.4	6.2	6.2 to 14.3	None	SP
BHRC03	5.5	6.3	6.3 to 14.9	None	SP
BHRC04	4.5	5.0	5.0 to 14.7	2.0 and 4.2	

Table 2

The ground conditions are summarised in Table2 which also shows the groundwater conditions and the locations of standpipe installations.

2.3 Trial Pits

The trial pits revealed topsoil overlying layers of gravelly sandy silt and clay, grading in places to sandy gravel with cobbles and boulders. In all locations, the pits met obstructions within two metres of the surface.

2.4 Dynamic Probing

Dynamic probing was utilised adjacent to each of the trial pits to obtain values of soil resistance.

The dynamic probe utilised by IGSL Ltd complies with the requirements of ISO 22476-2: 2005+A1: 2011 – Geotechnical Investigation and testing – Field testing - Part 2: Dynamic probing. DPH probing comprises a 50 kg drop weight, 500mm drop height and a 43.7mm diameter (90°) cone.

In accordance with the standards, the number of blows required to drive the probe through each 100mm increment of penetration is recorded. Probing is generally terminated when blow counts, N_{100} values, exceed 25, in order to avoid damage to equipment. Detailed probe records are provided on which the blow counts are recorded both numerically and graphically.

Probe results are used primarily in conjunction with known information on soil composition and stratification, to define more accurately the soil profile, and to detect any soft or loose zones. However, several authors have published relationships between blow-counts and strength parameters for both granular and fine grained soils.

All of the probes recorded low or moderate resistance within the upper metre. However, below this upper zone, resistance increased rapidly, with refusal at depths ranging from 1.2 metres (DP29) to 2.4 metres (DP13).

2.5 Infiltration Tests

Infiltration tests were performed in four locations to ascertain the suitability of the sub-soils for soakaway purposes. Testing was performed in accordance with BRE Digest 365 ‘Soakaway Design’.

To obtain a measure of the infiltration rate of the sub-soils, water was poured into each test pit to ensure total saturation of the sub-soils. This procedure was repeated twice more, and records were taken of the fall in water level against time. The results for the final stages of testing, following the saturation periods, are enclosed in Appendix 5

The infiltration rate is the volume of water dispersed per unit exposed area per unit of time, and is generally expressed as metres/minute or metres/second. The results for the final monitored stages are summarised in Table 3.

Location	Test pit Depth (m bgl)	Infiltration Rate (m/min)	Soil Type
SA01	1.5	0.00057	Sandy gravelly SILT/CLAY
SA02	1.4	0	Sandy gravel over possible rock
SA03	1.5	0.00025	Silty sandy GRAVEL
SA04	1.5	0.00017	Silty sandy GRAVEL
SA05	1.5	0.00091	Sandy Gravel

Table 3

3.0 Laboratory Test Results (Geotechnical)

3.1 Particle Size Distributions

Grading curves for selected samples show considerable variations in the composition of the sub-soils. It is also important to appreciate that, for practical reasons, cobbles and boulders were omitted from the test specimens.

3.2 Index Properties

The results of plastic and liquid limit tests classify the sub-soils as non-plastic.

3.3 Shear box tests

Small shear box tests (60mm x 60mm) were undertaken on four samples recovered from the trial pits. Tests were performed in accordance with BS1377:1990 Part 7 Clause 4.

The tests were used to determine the cohesion, c' and angle of internal shearing resistance (φ'). Two samples were prepared by compacting the sample into the shear box, while two were lightly tamped into the mould.

The results revealed φ' values in the range 38 to 44 degrees. Cohesion intercepts (c') ranged between 7 and 19 kPa.

3.4 Rock Testing

The Point Load Index Test provides a rapid, and accurate, strength index from rock fragments unlike the Uniaxial Compression test (UCS) which requires careful preparation of intact lengths of core. The test specimen is compressed between two cones loaded from a hydraulic hand pump. The core fails due to the tensile forces over the diametral area between the points. The strength at failure is expressed as the point load index Is. For purposes of comparison the Is values are corrected to give the equivalent strength for a 50 mm diameter specimen. This is the I_{s50} value. From research by several workers relationships have been formulated, relating the Is values to UCS.

The equivalent UCS values recorded from fragments of the bedrock vary from 16MPa to 120MPa, classifying the rock as weak to very strong. However, most of the results lie within the medium strong to strong range.

3.5 Chemical Analysis

The results of chemical testing generally showed mostly low concentrations of soluble sulphates. In addition, the pH values indicated near neutral conditions.

Where the soluble sulphate concentrations were significantly below 0.5 g/l, and pH values were above 2.5, a Design Sulphate Class of DS-1 may be assumed in accordance with Table C1 of BRE Special Digest 1 Concrete in Aggressive Ground: 2005.

Assuming a static groundwater table, an ACEC (Aggressive Chemical Environment for Concrete) Classification of AC-1s is applicable

The exception was a sample from a depth of 1.0 metres in TP24 where a soluble sulphate concentration of 0.77 g/l was recorded, classifying the sample as Class DS-2 and an ACEC of AC-1s.

4.0 Laboratory Test Results (Environmental)

Environmental testing was scheduled on selected samples. The samples underwent a Waste Acceptance Criteria (WAC) analyses in accordance with the RILTA Suite, which can be used to fully assess the waste disposal requirements of soils destined for landfill.

Included in the test suite are Heavy Metals, Speciated TPH, Mineral Oil, BTEX, PCB and Total Organic Carbon (TOC) carried out on dry soil samples. Also included are leachate analyses, whereby leachate is generated in accordance with CEN 10:1 specification and this is tested for the presence of recognised contaminants including Heavy Metals, Dissolved Organic Carbon (DOC) and Total Dissolved Solids (TDS). An Asbestos screen is also included in the RILTA suite.

5.0 Discussion

The investigation revealed weathered upper deposits, composed of gravelly silts and clays. These deposits were underlain by sandy gravel with cobbles and boulders. While the trial pits were terminated on obstructions encountered within two metres of the surface, the boreholes achieved depths ranging from 4.2 metres to 5.5 metres. Using rotary drilling and coring techniques, the boreholes were extended through coarse granular deposits and weathered rock, revealing intact granite at depths ranging from 5.0 metres to 6.3 metres. Granite, generally in medium strong to strong condition, was cored to depths of 14.5 metres to 14.9 metres.

Groundwater was encountered at various depths in the boreholes, rising to within 0.6 metres of the surface in places. Water ingress was also noted in the core holes. Standpipes were installed in selected locations to facilitate long-term monitoring.

5.1 Structural Foundations

While the sub-soils have a high granular content and will provide support for conventional strip or pad foundations, it will be important to ensure that all foundations are placed below any weathered soils or organic layers. The results of standard penetration tests in the boreholes indicate that, in all areas, founding depths should be less than 2.0 metres below existing ground level and the dynamic probe results suggest founding depths within 1.5 metres in most areas.

While variations in the composition and condition of the upper soils can be expected, the transition to competent material should be visually discernible. For foundations placed on the stiff gravelly clays or medium dense to dense granular deposits, a bearing resistance of 150 kN/m^2 can be presumed. This figure may be increased subject to visual inspection of foundation excavations. Incorporation of steel reinforcing in foundation concrete will minimise the effects of any differential movements.

In view of the instances of water ingress in the boreholes, provision should be made for dewatering of foundation excavations, if required.

5.2 Infiltration

Soakaways are generally designed in accordance with “BRE Digest 365 - Design of soakaways".

The digest suggests that a soakaway should be designed to accommodate the immediate storm-water run-off and permit infiltration into the surrounding ground sufficiently quickly to provide the necessary capacity to receive run-off from a subsequent storm. The required soakaway capacity is obtained by calculating the inflow and outflow for a range of storm durations and choosing the storm period which gives the maximum storage requirement. Rainfall statistics are obtained from Met Eireann and calculations are usually carried out for a 30 year return period.

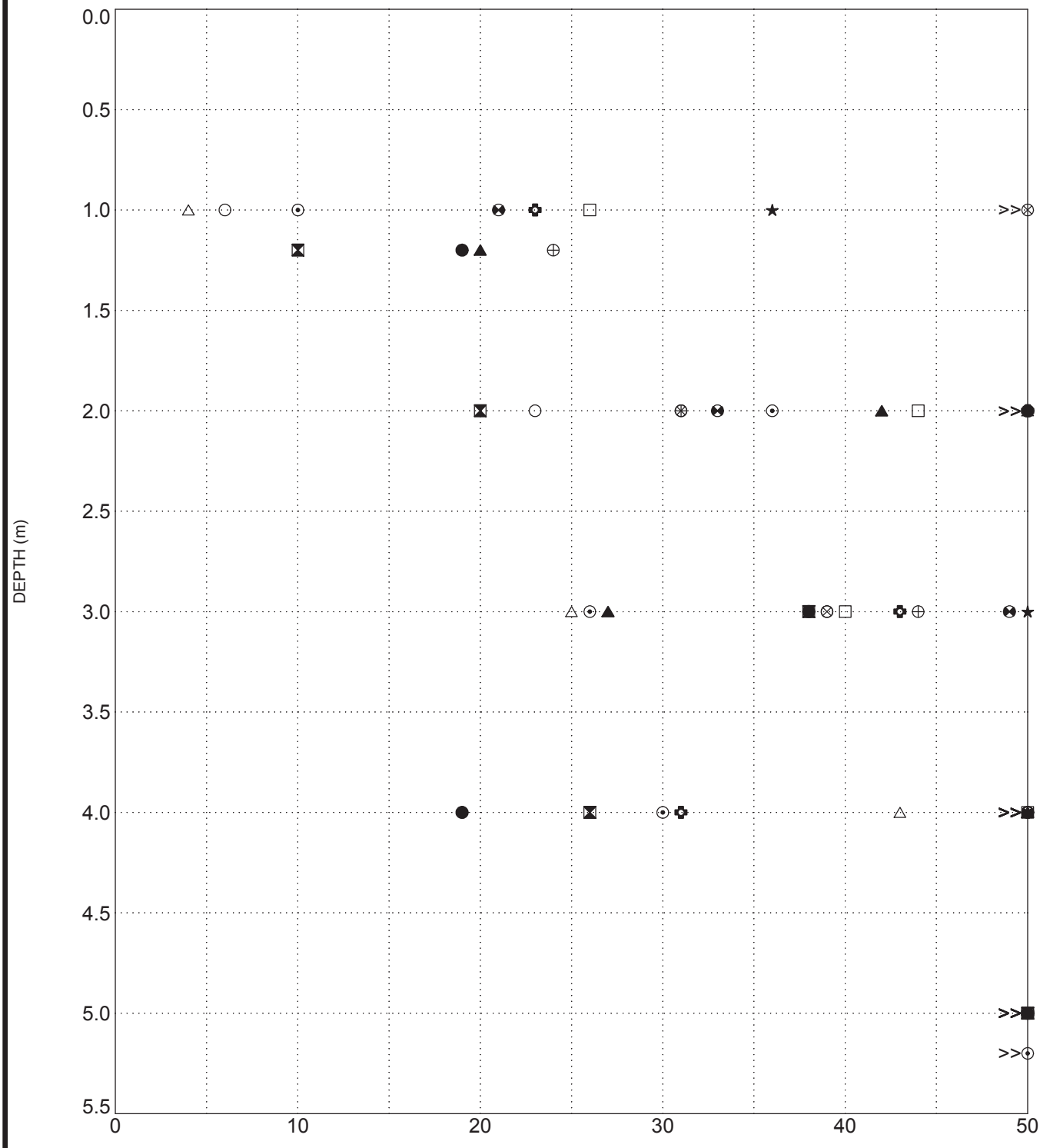
The measured infiltration rates were moderate, with no measurable movement where the sub-soil had the appearance of weathered rock.

Where the design of soakaways is considered impractical, it will be necessary to discharge run-off water to an existing surface water system, using attenuation techniques to regulate the flow.

5.3 Environmental Issues

The results of WAC analyses showed that all samples generally satisfy the criteria for inert waste as stipulated in the European Landfill Directive. However, since several samples showed elevated levels of dissolved organic carbon (DOC), this material will not be automatically accepted by a licensed inert landfill. Consultation with the chosen landfill would be advised.

It should be noted that the chosen landfill should be furnished with the WAC results in advance of any soils being removed from site. Depending on the extent and depth of excavation, the landfill may require additional testing to achieve the frequency of analysis (i.e. number of samples per unit volume of excavation) that meets their license requirements.



LEGEND
● BH01A
⊠ BH02
▲ BH03
★ BH04

LEGEND
⊙ BH05
✿ BH06
○ BH07
△ BH08

LEGEND
⊗ BHRC01
⊕ BHRC02
□ BHRC03
⊛ BHRC04

SPT N-VALUE vs DEPTH

Client: Lioncor Developments

Project: Priorsland,Carrickmines, Dublin 18

Number: 21219

AGS3 SPT VS DEPTH 21319.GPJ IGSL.GDT 22/1/19

Appendix 1 Boring Records

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH01**
		SHEET	Sheet 1 of 1
CO-ORDINATES	722,131.18 E 724,009.82 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	63.90	**BOREHOLE DEPTH (m)**	0.90
		DATE COMMENCED	22/10/2018
		DATE COMPLETED	22/10/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	D.Tolster
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		63.70	0.20						
	Brown sandy SILT/CLAY with gravel and some cobbles and occasional boulders				AA93613	B	0.50			
			63.00	0.90						
1	Obstruction End of Borehole at 0.90 m									
2										
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
0.7	0.9	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS Standing 3hrs on access.CAT scanned location and hand dug inspection pit completed.Obstruction encountered at 0.90m. Moved 4m to BH01A and attempted rebore.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH01A**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	5.10
		DATE COMMENCED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	D.Tolster
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.15						
	Firm brown very sandy SILT/CLAY with occasional gravel			1.20	AA93614	B	1.00		N = 19 (3, 4, 4, 3, 4, 8)	
1	Firmbrown sandy SILT/CLAY with gravel and occasional cobbles			2.00	AA93615	B	2.00		N = 50 (12, 13, 8, 10, 15, 17)	
2	Very stiff brown very sandy SILT/CLAY with gravel and occasional cobbles and boulders			3.00	AA93616	B	3.00		N = 38 (10, 10, 10, 8, 8, 12)	
3	Dense grey/brown fine to coarse sandy GRAVEL with some cobbles			3.70	AA93617	B	3.70			
	Medium dense black fine to coarse sandy clayey GRAVEL with cobbles			4.00	AA93618	B	4.00		N = 19 (4, 5, 4, 5, 4, 6)	
4	Dense grey/brown fine to coarse sandy GRAVEL with some cobbles and occasional boulders			5.10	AA93619	B	5.00		N = 50/75 mm (25, 50)	
5	Obstruction End of Borehole at 5.10 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.4	2.5	1	
4.9	5.1	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.40	3.40	No	2.30	20	Rapid

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
23-10-18	5.10	Nil	1.40	End of BH

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

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GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH02**
		SHEET	Sheet 1 of 1
CO-ORDINATES	722,180.53 E 723,998.88 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	63.24	**BOREHOLE DEPTH (m)**	5.30
		DATE COMMENCED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	D.Tolster
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		63.14	0.10						
	Soft light brown sandy SILT/CLAY with occasional gravel									
1			62.04	1.20	AA93620	B	1.00		N = 10 (2, 2, 2, 2, 3, 3)	
	Firm brown sandy SILT/CLAY with some gravel									
			61.24	2.00						
2	Stiff brown sandy CLAY with gravel and occasional cobbles and boulders				AA93621	B	2.00		N = 20 (4, 2, 3, 3, 7, 7)	
			60.54	2.70	AA93622	B	2.70			
3	Dense grey/brown fine to coarse sandy GRAVEL with cobbles and occasional boulders								N = 38 (10, 10, 10, 8, 8, 12)	
					AA93623	B	3.50			
			59.24	4.00	AA93624	B	4.00		N = 26 (9, 6, 6, 8, 6, 6)	
4	Medium dense black fine to coarse sandy clayey GRAVEL with cobbles and occasional boulders		58.94	4.30						
	Dense grey/brown fine to coarse sandy GRAVEL with cobbles and occasional boulders									
5			57.94	5.30	AA93625	B	5.00		N = 50/150 mm (7, 9, 31, 19)	
	Obstruction End of Borehole at 5.30 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
3.4	3.5	1	
5.1	5.3	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.00	2.00	No	No	20	Seepage

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
24-10-18	5.30	1.00	5.30	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

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GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT Priorsland,Carrickmines, Dublin 18

BOREHOLE NO. **BH03**
SHEET Sheet 1 of 1

CO-ORDINATES 722,351.77 E
723,962.63 N
GROUND LEVEL (m AOD) 63.61

RIG TYPE Dando 2000
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 4.20

DATE COMMENCED 31/10/2018
DATE COMPLETED 31/10/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

SPT HAMMER REF. NO.
ENERGY RATIO (%)

BORED BY D.Tolster
PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		63.51	0.10						
	Light brown sandy SILT/CLAY with occasional gravel		63.11	0.50						
	Firm light and dark sandy SILT/CLAY with some fine gravel				AA93637	B	0.50			
1			62.41	1.20	AA93638	B	1.00		N = 20 (2, 2, 4, 5, 5, 6)	
	Stiff grey sandy SILT/CLAY with cobbles									
			61.61	2.00						
2	Medium dense to dense grey/brown fine to coarse sandy GRAVEL with some cobbles and occasional boulders				AA93639	B	2.00		N = 42 (7, 8, 10, 10, 10, 12)	
3					AA93640	B	3.00		N = 27 (4, 6, 5, 6, 8, 8)	
					AA93641	B	3.50			
4			59.41	4.20	AA93642	B	4.00		N = 25/75 mm (12, 25, 25)	
	Obstruction End of Borehole at 4.20 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.4	2.6	1.5	
4	4.2	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.70	1.70	2.00	No	20	Slow

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
31-10-18	4.20	Nil	1.20	End of BH

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH04**
		SHEET	Sheet 1 of 1
CO-ORDINATES	722,153.21 E 723,959.25 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	63.60	**BOREHOLE DEPTH (m)**	4.50
		DATE COMMENCED	08/11/2018
		DATE COMPLETED	08/11/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	J.O'Toole
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		63.40	0.20						
	Firm brown SILT/CLAY with occasional fine gravel									
1					AA96674	B	1.00		N = 36 (2, 7, 9, 9, 9, 9)	
			62.20	1.40						
	Stiff to very stiff grey/brown SILT/CLAY with some gravel and occasional cobbles		61.80	1.80						
2	Dense grey/brown fine to coarse very sandy GRAVEL with occasional cobbles (Possibly very gravelly sand)				AA96675	B	2.00		N = 52 (7, 9, 12, 15, 10, 15)	
3					AA96676	B	3.00		N = 50 (6, 12, 13, 12, 13, 12)	
			59.60	4.00						
4	Dense angular COBBLES and BOULDERS				AA96677	B	4.00		N = 50/150 mm (10, 12, 24, 26)	
			59.10	4.50						
	Obstruction End of Borehole at 4.50 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.3	4.5	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.90	3.90	No	0.80	20	Rapid

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
08-11-18	4.50	Nil	1.30	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH05**
		SHEET	Sheet 1 of 1
CO-ORDINATES	722,119.27 E 723,936.65 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	64.24	**BOREHOLE DEPTH (m)**	5.30
		DATE COMMENCED	25/10/2018
		DATE COMPLETED	25/10/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	D.Tolster
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		64.04	0.20						
	Firm light brown sandy SILT/CLAY with occasional gravel				AA93626	B	1.00		N = 10 (2, 2, 2, 2, 3, 3)	
1			62.94	1.30						
	Stiff brown sandy SILT/CLAY with some gravel and occasional cobbles				AA93627	B	2.00		N = 36 (3, 9, 11, 9, 8, 8)	
2			61.74	2.50	AA93628	B	2.50			
	Medium dense grey/brown fine to coarse sandy GRAVEL with some cobbles and occasional boulders				AA93629	B	3.00		N = 26 (7, 8, 6, 5, 8, 7)	
3			60.24	4.00						
4	Medium dense brown fine to coarse sandy clayey GRAVEL with cobbles		59.94	4.30	AA93630	B	4.00		N = 30 (1, 4, 5, 8, 9, 8)	
	Dense white fine to coarse sandy GRAVEL with cobbles and boulders									
5			58.94	5.30	AA93631	B	5.00		N = 50/75 mm (25, 50)	
	Obstruction End of Borehole at 5.30 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.4	2.5	1	
5.1	5.3	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.40	2.40	2.40	No	0	Seepage

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH06**
		SHEET	Sheet 1 of 1
CO-ORDINATES	722,253.79 E 723,982.68 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	63.25	**BOREHOLE DEPTH (m)**	4.90
		DATE COMMENCED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	D.Tolster
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		63.10	0.15						
	Firm light brown sandy SILT/CLAY with occasional gravel									
1			62.05	1.20	AA93632	B	1.00		N = 23 (4, 4, 4, 5, 6, 8)	
	Stiff brown sandy SILT/CLAY with some gravel and occasional cobbles		61.45	1.80						
2	Medium dense to dense grey/brown fine to coarse GRAVEL with some cobbles and occasional boulders				AA93633	B	2.00		N = 50 (11, 14, 10, 10, 15, 15)	
3					AA93634	B	3.00		N = 43 (4, 5, 10, 13, 11, 9)	
4					AA93635	B	4.00		N = 31 (3, 5, 5, 8, 7, 11)	
	Obstruction		58.35	4.90						
5	End of Borehole at 4.90 m				AA93636	B	4.90		N = 50/225 mm (1, 3, 10, 18, 22)	
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.4	2.5	1	
4.7	4.9	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.80	1.80	2.00	1.40	20	Slow

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
30-10-18	4.80	Nil	1.20	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH07**
		SHEET	Sheet 1 of 1
CO-ORDINATES	722,425.16 E 723,947.09 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	62.19	**BOREHOLE DEPTH (m)**	4.20
		DATE COMMENCED	01/11/2018
		DATE COMPLETED	01/11/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	D.Tolster
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		62.09	0.10						
	Soft brown slightly sandy peaty SILT/CLAY with occasional gravel				AA93643	B	0.50			
1					AA93644	B	1.00		N = 6 (0, 1, 1, 1, 2, 2)	
	Stiff brown sandy SILT/CLAY with some gravel and occasional cobbles		60.89	1.30						
2					AA93645	B	2.00		N = 23 (2, 2, 2, 6, 9, 6)	
	Medium dense to dense grey/brown fine to coarse sandy GRAVEL with cobbles and occasional boulders		59.49	2.70						
3					AA93646	B	3.00		N = 39 (3, 6, 9, 12, 9, 9)	
4					AA93647	B	4.00		N = 50/75 mm (12, 12, 50)	
	Obstruction End of Borehole at 4.20 m		57.99	4.20						
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4	4.2	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.20	1.20	2.00	0.90	20	Slow

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
01-11-18	4.20	1.00	4.20	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
01-11-18	4.20	Nil	0.60	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BH08**
		SHEET	Sheet 1 of 1
CO-ORDINATES	722,320.18 E 723,816.27 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	63.06	**BOREHOLE DEPTH (m)**	5.40
		DATE COMMENCED	02/11/2018
		DATE COMPLETED	02/11/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	D.Tolster
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		62.86	0.20						
	Soft brown sandy SILT/CLAY with some gravel				AA93648	B	0.50			
1			61.86	1.20	AA93649	B	1.00		N = 4 (1, 1, 1, 0, 1, 2)	
	Stiff mottled black/brown/yellow SILT/CLAY with gravel and occasional large boulders		61.56	1.50						
	Very stiff to hard brown sandy gravelly CLAY with some cobbles and boulders		61.06	2.00						
2	Medium dense grey/brown fine to coarse sandy GRAVEL with cobbles and occasional boulders				AA93650	B	2.00		N = 35/150 mm (25, 15, 18, 17)	
3					AA93651	B	3.00		N = 25 (4, 4, 5, 6, 6, 8)	
4					AA93652	B	4.00		N = 43 (15, 10, 12, 13, 9, 9)	
5			57.66	5.40	AA93653	B	5.00		N = 50/75 mm (10, 10, 50)	
	Obstruction End of Borehole at 5.40 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2	2.2	1	
5.2	5.4	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
02-11-18	5.40	Nil	3.00	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BHRC01**
		SHEET	Sheet 1 of 1
CO-ORDINATES	**RIG TYPE** Dando 2000	**DATE COMMENCED**	10/11/2018
GROUND LEVEL (m AOD)	**BOREHOLE DIAMETER (mm)** 200	**DATE COMPLETED**	10/11/2018
	BOREHOLE DEPTH (m) 4.40		
CLIENT Lioncor Developments	**SPT HAMMER REF. NO.**	**BORED BY**	J.O'Toole
ENGINEER Punch C.E	**ENERGY RATIO (%)**	**PROCESSED BY**	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Soft brown SILT/CLAY with occasional fine gravel			0.80						
	Firm black/grey sandy SILT/CLAY with some gravel			1.10						
1	Dense large COBBLES and BOULDERS			1.80	AA96682	B	1.20		N = 50/150 mm (10, 8, 15, 35)	
2	Medium dense to dense grey fine to coarse sandy GRAVEL with occasional cobbles				AA96683	B	2.00		N = 31 (4, 7, 7, 9, 8, 7)	
3					AA96684	B	3.00		N = 39 (3, 7, 9, 10, 9, 11)	
4				4.10	AA96685	B	4.00		N = 30/150 mm (10, 12, 22, 8)	
	Dense large angular COBBLES/BOULDERS			4.40						
	Obstruction End of Borehole at 4.40 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.1	1.8	1.5	
4.2	4.4	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.80	2.80	No	1.80	20	Seepage

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
10-11-18	4.40	Nil	0.60	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BHRC02**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	4.60
		DATE COMMENCED	09/11/2018
		DATE COMPLETED	09/11/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	J.O'Toole
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Soft brown SILT/CLAY with occasional fine gravel			0.50						
	Firm black sandy SILT/CLAY with some gravel			1.20	AA96675	B	1.00		N = 24 (1, 2, 4, 6, 7, 7)	
1	Medium dense to dense grey fine to coarse sandy GRAVEL with occasional cobbles									
2					AA96676	B	2.00		N = 31 (2, 4, 7, 7, 9, 8)	
3					AA96677	B	3.00		N = 44 (3, 7, 11, 10, 12, 11)	
4				4.10	AA96678	B	4.00		N = 35/150 mm (9, 18, 26, 9)	
	Dense angular COBBLES and BOULDERS			4.40						
	Obstruction End of Borehole at 4.60 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.4	4.6	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.80	3.80	No	0.80	20	Seepage

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
09-11-18	4.60	Nil	1.20	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BHRC03**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	5.50
		DATE COMMENCED	11/11/2018
		DATE COMPLETED	11/11/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		BORED BY	J.O'Toole
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Brown SILT/CLAY			0.60						
1	Soft to firm grey/black SILT/CLAY with occasional fine gravel			1.20	AA96686	B	1.00		N = 26 (2, 4, 6, 6, 7, 7)	
2	Medium dense to dense grey fine to coarse very sandy GRAVEL (Possibly very gravelly sand)			2.80	AA96687	B	2.00		N = 44 (3, 9, 10, 11, 11, 12)	
3	Dense grey fine to coarse sandy slightly silty GRAVEL with some cobbles			3.90	AA96688	B	3.00		N = 40 (2, 7, 10, 10, 8, 12)	
4	Dense grey/black angular COBBLES and BOULDERS				AA96689	B	4.00		N = 50/150 mm (6, 25, 10, 40)	
5				5.50	AA91709	B	5.00		N = 30/75 mm (18, 20, 30)	
6	Obstruction End of Borehole at 5.50 m									
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.2	4.5	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.20	3.20	No	2.60	20	Moderate

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
11-01-18	5.50	Nil	1.30	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

GEOTECHNICAL BORING RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**BOREHOLE NO.**	**BHRC04**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	4.50
		DATE COMMENCED	12/11/2018
		DATE COMPLETED	12/11/2018
CLIENT	Lioncor Developments	**SPT HAMMER REF. NO.**	
		BORED BY	J.O'Toole
ENGINEER	Punch C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Soft brown sandy SILT/CLAY			0.50						
	Firmbrown/grey sandy SILT/CLAY with occasional fine gravel			1.10	AA96690	B	1.00		N = 21 (3, 4, 4, 5, 6, 6)	
1	Medium dense to dense grey fine to coarse very sandy GRAVEL with some cobbles (Possibly very gravelly sand)									
2					AA96691	B	2.00		N = 33 (4, 6, 7, 7, 9, 10)	
3					AA96692	B	3.00		N = 49 (3, 10, 14, 13, 12, 10)	
				4.00	AA96693	B	4.00		N = 50/150 mm (10, 25, 30, 20)	
4	Dense angular COBBLES and BOULDERS			4.50						
	Obstruction End of Borehole at 4.50 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.3	4.5	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.10	3.10	No	2.60	20	Moderate

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
12-11-18	4.50	Nil	1.10	End of BH

REMARKS CAT scanned location and hand dug inspection pit completed.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21319BH.GPJ IGSL.GDT 16/11/18

Appendix 2 Rotary Records

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**DRILLHOLE NO**	**RC01**
		SHEET	Sheet 1 of 2
CO-ORDINATES		**DATE DRILLED**	20/11/2018
GROUND LEVEL (mOD)		**DATE LOGGED**	20/11/2018
CLIENT	Lioncor Developments	**DRILLED BY**	Petersen
ENGINEER	Punch C.E	**LOGGED BY**	D.O'Shea
RIG TYPE	Knebel		
FLUSH	Air/Mist		
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm silty TOPSOIL	0.20			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm brown silty sandy CLAY	1.00			
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm grey silty very sandy gravelly CLAY	1.20			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of dense grey/brown silty sandy GRAVEL				
2		0	0	0								
3												
4									4.70			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of weak highly weathered ROCK	4.90			
5	5.20							SYMMETRIX DRILLING: No recovery, observed by driller as returns of strong fresh ROCK	5.20			
		100	96	85				Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally moderately weathered (at 7.61-7.74m).				
6	6.70											
7		100	92	92		950		Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, commonly strong penetrative iron-oxide staining. Dips are subhorizontal & 70°.				
8	8.20					709.999999999999						
		100	100	97		780.000000000001						
9	9.70											

REMARKS

Hole cased 0.00-5.20m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.90	4.90	N/S			Rapid

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL RC FI 10M 21319.GPJ IGSL.GDT 11/12/18

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT Priorsland,Carrickmines, Dublin 18

DRILLHOLE NO RC01
SHEET Sheet 2 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE Knebel
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE DRILLED 20/11/2018
DATE LOGGED 20/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

DRILLED BY Petersen
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10		100	89	70				Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally moderately weathered (at 7.61-7.74m). Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, commonly strong penetrative iron-oxide staining. Dips are subhorizontal & 70°. *(continued)*				
11	11.00	100	98	95								
12	12.50	100	96	91								
13	13.90	100	100	100								
14	14.50							End of Borehole at 14.50 m	14.50			
15												
16												
17												
18												
19												

REMARKS

Hole cased 0.00-5.20m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.90	4.90	N/S			Rapid

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**DRILLHOLE NO**	**RC02**
		SHEET	Sheet 1 of 2
CO-ORDINATES		**DATE DRILLED**	16/11/2018
GROUND LEVEL (mOD)		**DATE LOGGED**	19/11/2018
CLIENT	Lioncor Developments	**DRILLED BY**	Petersen
ENGINEER	Punch C.E	**LOGGED BY**	D.O'Shea
RIG TYPE	Knebel		
FLUSH	Air/Mist		
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm TOPSOIL	0.20			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of soft to firm brown silty sandy CLAY	1.20			
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of medium dense grey/brown sandy GRAVEL				
2												
3		0	0	0					3.10			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm grey silty very sandy gravelly CLAY				
4												
5									5.30			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of medium strong slightly weathered ROCK	5.60			
6	6.20							SYMMETRIX DRILLING: No recovery, observed by driller as returns of strong fresh ROCK	6.20			
		100	100	72				Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally moderately weathered (at 12.09-12.12m).				
7	7.50					680.000000000001		Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, commonly strong penetrative iron-oxide staining. Dips are subhorizontal & 70°.				
		100	100	86		880.000000000001						
8	9.00											
9		100	96	86								

REMARKS

Hole cased 0.00-6.20m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
19-11-18	14.30	5.30	14.30	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT Priorsland,Carrickmines, Dublin 18

DRILLHOLE NO RC02
SHEET Sheet 2 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE Knebel
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE DRILLED 16/11/2018
DATE LOGGED 19/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

DRILLED BY Petersen
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10	10.40							Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally moderately weathered (at 12.09-12.12m).				
11		100	93	83	1040			Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, commonly strong penetrative iron-oxide staining. Dips are subhorizontal & 70°. *(continued)*				
12	11.90	100	96	56								
13	13.30	100	76	32								
14	14.30								14.30			
15								End of Borehole at 14.30 m				
16												
17												
18												
19												

REMARKS

Hole cased 0.00-6.20m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
19-11-18	14.30	5.30	14.30	50mm SP

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**DRILLHOLE NO**	**RC03**
		SHEET	Sheet 1 of 2
CO-ORDINATES		**DATE DRILLED**	22/11/2018
GROUND LEVEL (mOD)		**DATE LOGGED**	22/11/2018
RIG TYPE	Knebel		
FLUSH	Air/Mist		
CLIENT	Lioncor Developments	**INCLINATION (deg)**	-90
ENGINEER	Punch C.E	**CORE DIAMETER (mm)**	78
		DRILLED BY	Petersen
		LOGGED BY	D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm sandy TOPSOIL	0.20			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm brown silty very sandy CLAY	0.80			
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of medium dense brown sandy GRAVEL with cobbles				
2												
3		0	0	0								
4												
5									5.30			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of medium strong slightly weathered ROCK	5.70			
6	6.30							SYMMETRIX DRILLING: No recovery, observed by driller as returns of strong fresh ROCK	6.30			
		95	70	36				Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally slightly weathered.				
7	7.30				660			Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, locally slight iron-oxide staining. Dips are subhorizontal & 70°.				
		100	105	57								
8	8.60											
		100	100	91								
9	9.60											

REMARKS

Hole cased 0.00-6.30m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
	14.90	5.90	14.90	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT Priorsland,Carrickmines, Dublin 18

DRILLHOLE NO RC03
SHEET Sheet 2 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE Knebel
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE DRILLED 22/11/2018
DATE LOGGED 22/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

DRILLED BY Petersen
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10		100	100	95		599.9999999999999		Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally slightly weathered.				
	10.90							Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, locally slight iron-oxide staining. Dips are subhorizontal & 70°. *(continued)*				
11		100	100	92		660						
12	12.40											
13		100	95	63		620.0000000000001						
	13.90											
14		100	96	66		530.0000000000001						
	14.90							End of Borehole at 14.90 m	14.90			
15												
16												
17												
18												
19												

REMARKS

Hole cased 0.00-6.30m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
	14.90	5.90	14.90	50mm SP

IGSL RC FI 10M 21319.GPJ IGSL.GDT 11/12/18

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT Priorsland,Carrickmines, Dublin 18

DRILLHOLE NO RC04
SHEET Sheet 1 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE Knebel
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE DRILLED 15/11/2018
DATE LOGGED 16/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

DRILLED BY Petersen
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm TOPSOIL	0.20			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm brown silty sandy CLAY	1.10			
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of firm grey silty very sandy gravelly CLAY	1.40			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of dense to very dense brown sandy GRAVEL with cobbles				
2		0	0	0								
3									3.10			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of medium dense grey/brown silty sandy GRAVEL				
4									4.20			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of medium strong slightly weathered ROCK				
	5.00								5.00			
5		93	74	35				Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally slightly weathered. Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, locally slight iron-oxide staining. Dips are subhorizontal & 70°.				
6	6.50											
7		100	81	17								
	8.00											
8		100	94	48								
9	9.50											

REMARKS

Hole cased 0.00-5.00m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.00	2.00	N/S			Moderate
4.20	4.20	N/S			Rapid

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 21319

CONTRACT Priorsland,Carrickmines, Dublin 18

DRILLHOLE NO RC04
SHEET Sheet 2 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE Knebel
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE DRILLED 15/11/2018
DATE LOGGED 16/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

DRILLED BY Petersen
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10		100	97	78				Strong to medium strong, thickly to thinly bedded (flow banded), grey/white/brown/black, fine to medium-grained, GRANITE, fresh to locally slightly weathered.				
	11.00							Discontinuities are widely to closely spaced, smooth, planar to undulose. Apertures are tight to locally moderately open, locally clay smeared, locally slight iron-oxide staining. Dips are subhorizontal & 70°. *(continued)*				
11		100	69	41								
	12.00											
12		100	91	72								
13	13.50											
		100	68	37								
14	14.70								14.70			
								End of Borehole at 14.70 m				
15												
16												
17												
18												
19												

REMARKS

Hole cased 0.00-5.00m.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.00	2.00	N/S			Moderate
4.20	4.20	N/S			Rapid

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL RC FI 10M 21319.GPJ IGSL.GDT 11/12/18

RC01 Box 1 of 4 – 5.20-8.20m

RC01 Box 2 of 4 – 8.20-11.00m

RC01 Box 3 of 4 – 11.00-13.90m

RC01 Box 4 of 4 – 13.90-14.50m

RC02 Box 1 of 3 – 6.20-9.00m

RC02 Box 2 of 3 – 9.00-11.90m

RC02 Box 3 of 3 – 11.90-14.30m

RC03 Box 1 of 4 – 6.30-9.10m

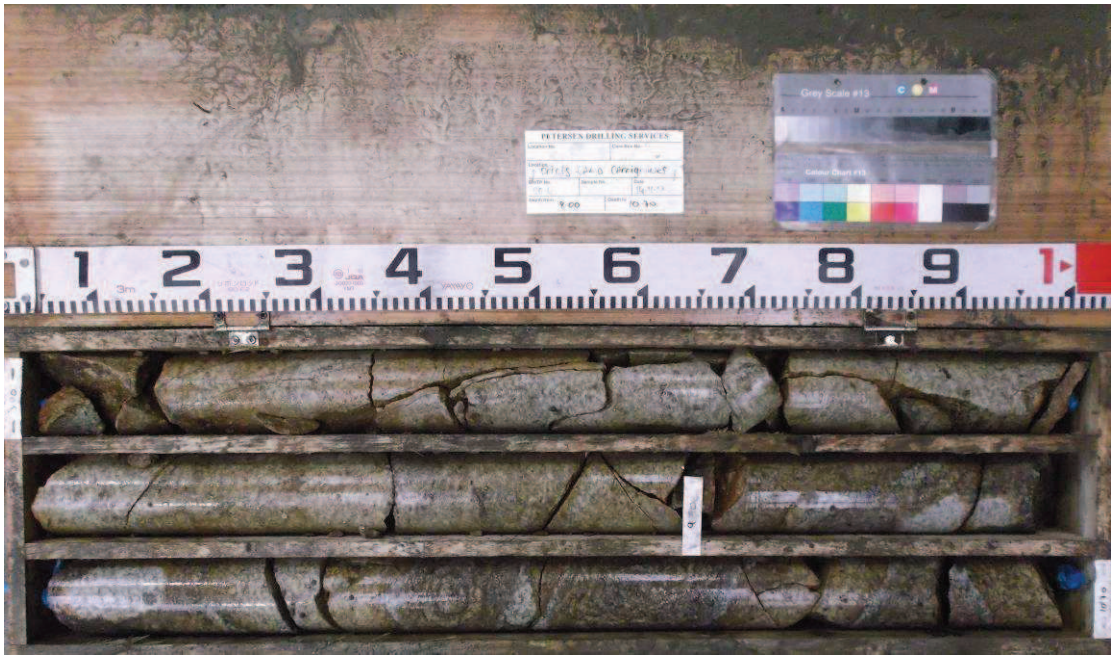
RC03 Box 2 of 4 – 9.10-11.90m

RC03 Box 3 of 4 – 11.90-14.70m

RC03 Box 4 of 4 – 14.70-14.90m

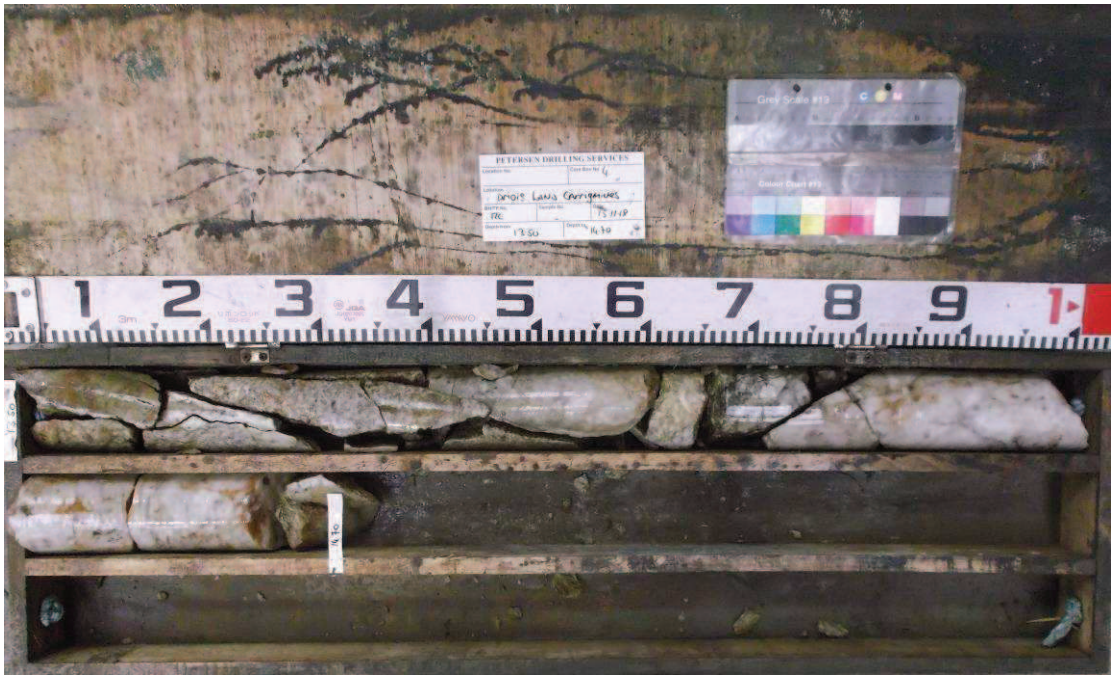
RC04 Box 1 of 4 – 5.00-8.00m

RC04 Box 2 of 4 – 8.00-10.70m



RC04 Box 3 of 4 – 10.70-13.50m

RC04 Box 4 of 4 – 13.50-14.70m



Appendix 3 Trial Pit Records

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP01**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,106.86 E 724,014.00 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	64.25
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	63.95						
Brown very sandy slightly gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm		0.70	63.55						
Brown very sandy slightly gravelly CLAY/SILT with medium cobble content and firm dark brown sandy SILT lenses. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85651	B	0.70		
1.0					AA85653	B	1.40		
OBSTRUCTION		1.89	62.36						
2.0 End of Trial Pit at 1.90m		1.90	62.35						
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP02**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,156.07 E 724,004.00 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	64.12
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	63.82						
Brown very sandy slightly gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <700mm					AA85652	Env B	0.60 0.60		
Clayey gravelly SAND with high cobble and low boulder content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm		0.85	63.27						
1.0									
OBSTRUCTION End of Trial Pit at 1.80m		1.79 1.80	62.33 62.32		AA80657	B	1.70		
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP03**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,204.99 E 723,993.70 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	63.25
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	62.95						
Brown very sandy slightly gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm		0.75	62.50		AA80658	B	0.40		
Silty clayey gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.10	62.15		AA80659	B	0.90		
1.0 Silty clayey gravelly gravelly SAND with medium cobble content and occasional boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm.		1.79	61.46		AA80660	B	1.50		
OBSTRUCTION - Large quantities of cobble and boulders		1.80	61.45						
End of Trial Pit at 1.80m									
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP04**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,229.46 E 723,988.52 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	63.45
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	63.15						
Brown very sandy slightly gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm		0.50	62.95		AA80661	B Env	0.40 0.50		
Silty clayey gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.80	62.65						
1.0 Very gravelly SAND with medium cobble content and occasional boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <450mm.				1 (Slow)	AA80662	B	1.00		
OBSTRUCTION		1.79	61.66						
End of Trial Pit at 1.80m		1.80	61.65						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability
Unstable at 1.1m

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP05**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,280.88 E 723,978.17 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	63.13
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	62.83						
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm						Env	0.50		
		0.70	62.43		AA80663	B	0.50		
1.0 Dark brown very sandy very gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <350mm				1 (Slow)	AA80664	B	1.20		
OBSTRUCTION		1.39	61.74						
End of Trial Pit at 1.40m		1.40	61.73						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability
Slightly unstable at 1.0m

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP06**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,302.85 E 723,972.98 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.85
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	62.55						
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.65	62.20		AA80665	B	0.50		
Clayey very sandy GRAVEL with high cobble and boulder content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm.						Env	0.75		
1.0					AA80666	B	1.00		
				1 (Seepage)					
OBSTRUCTION		1.39	61.46						
End of Trial Pit at 1.40m		1.40	61.45						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP07**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,327.30 E 723,967.81 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.21
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.91						
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.70	61.51		AA80667	B	0.65		
Clayey very sandy GRAVEL with high cobble and boulder content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm.					AA80668	B	1.10		
1.0									
OBSTRUCTION		1.49	60.72						
End of Trial Pit at 1.50m		1.50	60.71						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability
Slightly unstable at 0.85m

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP08**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,376.24 E 723,957.40 N
		DATE STARTED	01/11/2018
		DATE COMPLETED	01/11/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.31
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
		0.30	62.01						
Brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85666	B	0.50		
1.0					AA85667	B	1.00		
Brown sandy slightly gravelly CLAY with high cobble and boulder content <450mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.10	61.21						
OBSTRUCTION - Large quantities of cobble and boulders		1.48	60.83						
End of Trial Pit at 1.50m		1.50	60.81						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP09**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,400.41 E 723,951.97 N
		DATE STARTED	01/11/2018
		DATE COMPLETED	01/11/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.21
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.91						
Medium grained SAND		0.45	61.76						
Grey/green very sandy SILT. Sand is fine to medium.		0.60	61.61						
Dark brown fiberous peaty SILT.						Env	0.70		
					AA85668	B	0.70		
1.0 Clayey very sandy GRAVEL with high cobble and boulder content <350mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.00	61.21						
				1 (Slow)	AA85669	B	1.50		
OBSTRUCTION - Large quantities of cobble and boulders		1.73	60.48						
End of Trial Pit at 1.75m		1.75	60.46						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP10**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,449.62 E 723,941.91 N
		DATE STARTED	01/11/2018
		DATE COMPLETED	01/11/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.02
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.72						
Grey brown mottled orange very sandy SILT. Sand is fine to medium.		0.60	61.42		AA85649	B	0.40		
Dark brown fiberous peaty SILT.		1.00	61.02			Env	0.70		
					AA80650	B	0.70		
1.0 Cayey very sandy GRAVEL with high cobble and boulder content <350mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.									
OBSTRUCTION - Large quantities of cobble and boulders		1.58	60.44						
End of Trial Pit at 1.60m		1.60	60.42						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP11**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,101.00 E 723,989.00 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	64.12
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	63.82						
Brown very sandy slightly gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm					AA80654	B	0.70		
		0.85	63.27			Env	0.75		
1.0 Clayey gravelly SAND with high cobble and low boulder content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm					AA80655	B	1.20		
2.0 OBSTRUCTION		1.99	62.13						
End of Trial Pit at 2.00m		2.00	62.12						
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP12**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,174.80 E 723,974.50 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	63.13
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.25	62.88						
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA80669	B	0.60		
1.0									
Clayey very sandy GRAVEL with high cobble and boulder content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <350mm.		1.20	61.93		AA85653	B	1.10		
					AA85654	B	1.50		
OBSTRUCTION		1.89	61.24						
2.0 End of Trial Pit at 1.90m		1.90	61.23						
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP13**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,248.26 E 723,958.98 N
		DATE STARTED	23/10/2018
		DATE COMPLETED	23/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30							
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85655	B	0.60		
1.0 Dark brown very sandy very gravelly CLAY/SILT with medium cobble content and rare boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <350mm		0.95		1 (Seepage)	AA85656	B	1.20		
OBSTRUCTION End of Trial Pit at 1.50m		1.49 1.50							
2.0									
3.0									
4.0									

Groundwater Conditions

Stability
Slightly unstable at 1.0m

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP14**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,345.80 E 723,938.31 N
		DATE STARTED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.28
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.98						
Brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.50	61.78						
Light brown mottled grey very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.70	61.58			Env	0.60		
Silty very sandy GRAVEL with high cobble content. Sand is fine to coarse, angular to subrounded.					AA80694	B	0.60		
1.0					AA85658	B	1.20		
OBSTRUCTION		1.38	60.90						
End of Trial Pit at 1.40m		1.40	60.88						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability
Unstable at 1.2

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP15**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,419.50 E 723,922.73 N
		DATE STARTED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.20
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.90						
Dark brown/orange/grey fiberous peaty SILT.		0.50	61.70		AA85671	B	0.45		
Grey sandy very gravelly SILT/CLAY with medium cobble content and occasional boulder.						Env	1.00		
1.0					AA85672	B	1.30		
OBSTRUCTION		1.58	60.62						
End of Trial Pit at 1.60m		1.60	60.60						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP16**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,120.28 E 723,960.52 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	63.45
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	63.15						
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.						Env	0.70		
		0.90	62.55		AA85657	B	0.70		
1.0 Grey/brown silty gravelly SAND with medium cobble content and occasional boulder < 250mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA80670	B	1.50		
2.0 OBSTRUCTION		1.99	61.46						
End of Trial Pit at 2.00m		2.00	61.45						
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP17**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,169.21 E 723,950.16 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	64.13
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	63.83						
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA80673	B	0.70		
1.0 Fine grained SAND		1.10	63.03						
					AA80674	B	1.30		
Very gravelly SAND with medium cobble content and occasional boulder. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <450mm.		1.45	62.68						
2.0					AA80675	B	2.00		
OBSTRUCTION		2.19	61.94						
End of Trial Pit at 2.20m		2.20	61.93						
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP18**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,242.59 E 723,934.60 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	63.01
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	62.71						
Light brown very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.75	62.26						
Brown mottled orange sandy gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA80692	B	0.90		
1.0		1.50	61.51						
Very silty very sandy GRAVEL with high cobble and boulder content. Sand is fine to coarse, angular to subrounded. Boulders are <500mm.		1.68	61.33		AA80693	B	1.60		
OBSTRUCTION - Large quantities of cobble and boulders		1.70	61.31						
End of Trial Pit at 1.70m									
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP19**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,340.32 E 723,913.02 N
		DATE STARTED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.29
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.20	62.09						
Brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.40	61.89						
Light brown mottled grey very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.80	61.49		AA80696	B	0.80		
Silty very sandy GRAVEL with high cobble content. Sand is fine to coarse, angular to subrounded.						Env	1.00		
1.0					AA80695	B	1.00		
OBSTRUCTION		1.43	60.86						
End of Trial Pit at 1.45m		1.45	60.84						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP20**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,413.83 E 723,898.38 N
		DATE STARTED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.14
		EXCAVATION METHOD	JCB
ENGINEER	Punch C.E		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.84						
Brown/grey/orange sandy slightly gravelly SILT/CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.60	61.54		AA85673	B	0.50		
Silty very sandy GRAVEL with high cobble and boulder content <400mm. Sand is fine to coarse, angular to subrounded.				1 (Slow)	AA85674	B	1.20		
1.0									
OBSTRUCTION		1.58	60.56						
End of Trial Pit at 1.60m		1.60	60.54						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability
Unstable at 1.0

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP21**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,139.64 E 723,931.74 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	64.24
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	63.94						
Light brown very sandy slightly gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.						Env	0.60		
					AA80671	B	0.80		
1.0 Grey/brown silty gravelly SAND with medium cobble content and occasional boulder < 250mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.05	63.19						
					AA80672	B	1.50		
OBSTRUCTION - Large quantities of cobble and boulders		1.69	62.55						
End of Trial Pit at 1.90m		1.70	62.54						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP22**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,261.40 E 723,905.09 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.21
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.91						
Light brown very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.65	61.56		AA80688	B Env	0.50 0.60		
Brown mottled orange sandy gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.45	60.76		AA80687	B	1.00		
Very silty very sandy GRAVEL with high cobble and boulder content. Sand is fine to coarse, angular to subrounded. Boulders are <500mm.		1.88	60.33	1 (Slow)	AA80688	B	1.80		
OBSTRUCTION - Large quantities of cobble and boulders End of Trial Pit at 1.90m		1.90	60.31						

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP23**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,212.47 E 723,915.45 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.15
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.85						
Light brown mottled grey very sandy slightly gravelly CLAY/SILT with low cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA80676	B Env	0.50 0.60		
1.0 Very gravelly SAND with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.20	60.95	1 (Seepage)	AA80677	B	1.50		
OBSTRUCTION - Large quantities of cobble and boulders		1.88	60.27		AA80678	B	1.80		
2.0 End of Trial Pit at 1.90m		1.90	60.25						
3.0									
4.0									

Groundwater Conditions

Stability
Unstable at 1.7m

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP24**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,236.94 E 723,910.27 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.25
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
		0.30	61.95						
Light brown very sandy very gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.						Env	0.60		
					AA80679	B	0.60		
		1.00	61.25						
1.0 Brown/grey/orange SILT.									
					AA80680	B	1.30		
		1.60	60.65	1					
Grey/brown silty very sandy GRAVEL with medium cobble content and occasional boulder < 250mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.				(Slow)	AA80681	B	1.70		
		1.88	60.37						
OBSTRUCTION - Large quantities of cobble and boulders		1.90	60.35						
2.0 End of Trial Pit at 1.90m									
3.0									
4.0									

Groundwater Conditions

Stability
Unstable at 1.7m

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP25**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,285.86 E 723,899.92 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.27
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.97						
Light brown very sandy very gravelly CLAY/SILT with medium cobble content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA80682	B	0.40		
						Env	0.60		
1.0					AA80683	B	0.90		
Light brown very sandy very gravelly CLAY/SILT with high cobble content and low boulder <400mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.30	60.97						
		1.58	60.69		AA80684	B	1.50		
OBSTRUCTION		1.60	60.67						
End of Trial Pit at 1.60m									
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP26**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,310.33 E 723,894.74 N
		DATE STARTED	24/10/2018
		DATE COMPLETED	24/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.52
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL		0.30	62.22						
Light brown very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.50	62.02		AA80685	B	0.40		
Dark brown very sandy very gravelly CLAY/SILT. Sand is fine to coarse, angular to subrounded.					AA80686	B	1.00		
Silty very sandy GRAVEL with high cobble and boulder content <400mm. Sand is fine to coarse, angular to subrounded.		1.20	61.32		AA80687	B	1.40		
OBSTRUCTION - Large quantities of cobble and boulders		1.88	60.64	1 (Moderate)					
End of Trial Pit at 1.90m		1.90	60.62						

Groundwater Conditions

Stability
Unstable at 1.4m

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP27**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,358.23 E 723,882.74 N
		DATE STARTED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.54
		EXCAVATION METHOD	JCB
ENGINEER	Punch C.E		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	62.24						
Light brown/grey very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA80697	B	0.50		
1.0									
Silty very sandy GRAVEL with high cobble content. Sand is fine to coarse, angular to subrounded.		1.40	61.14	1 (Slow)	AA80699	B	1.50		
OBSTRUCTION - Large quantities of cobble and boulders		1.68	60.86						
End of Trial Pit at 1.70m		1.70	60.84						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability
Unstable at 1.5

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP28**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,383.92 E 723,879.74 N
		DATE STARTED	31/10/2018
		DATE COMPLETED	31/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.09
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.79						
Light brown/grey very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.						Env	0.70		
		0.90	61.19		AA80700	B	0.70		
1.0 Silty very sandy GRAVEL with high cobble content. Sand is fine to coarse, angular to subrounded.					AA85659	B	1.10		
OBSTRUCTION - Large quantities of cobble and boulders		1.48	60.61						
End of Trial Pit at 1.50m		1.50	60.59						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP29**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,433.22 E 723,868.41 N
		DATE STARTED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.57
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	62.27						
Brown very sandy slightly gravelly CLAY/SILT.Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85660	B	0.30		
						Env	0.60		
		0.75	61.82		AA85661	B	0.60		
Brown mottled orange sandy gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. 1.0									
					AA85662	B	1.40		
OBSTRUCTION		1.53	61.04						
End of Trial Pit at 1.55m		1.55	61.02						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP30**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,458.42 E 723,863.68 N
		DATE STARTED	30/10/2018
		DATE COMPLETED	30/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.73
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
		0.30	62.43						
Brown very sandy slightly gravelly CLAY/SILT with dark grey sandy SILT lenses.Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85663	B	0.40		
		0.80	61.93						
1.0 Very sandy GRAVEL with high cobble content and occasional boulder <350mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.						Env	1.00		
					AA85664	B	1.00		
					AA85665	B	1.60		
OBSTRUCTION		1.73	61.00						
End of Trial Pit at 1.75m		1.75	60.98						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP31**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,329.12 E 723,865.21 N
		DATE STARTED	01/11/2018
		DATE COMPLETED	01/11/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.26
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
		0.35	61.91						
Brown/grey/orange sandy slightly gravelly SILT/CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.60	61.66			Env	0.50		
Grey sandy very gravelly SILT/CLAY with medium cobble content and occasional boulder.					AA85683	B	0.80		
1.0									
		1.20	61.06						
Clayey very sandy GRAVEL with high cobble and boulder content <350mm. Sand is fine to medium. Gravel is fine to coarse, rounded to subrounded.					AA85684	B	1.40		
		1.83	60.43	1 (Moderate)					
OBSTRUCTION - Large quantities of cobble and boulders		1.85	60.41						
End of Trial Pit at 1.85m									
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP32**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,402.51 E 723,849.67 N
		DATE STARTED	01/11/2018
		DATE COMPLETED	01/11/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.31
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
		0.35	61.96						
Brown/grey/orange sandy slightly gravelly SILT/CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.						Env	0.60		
					AA85687	B	0.60		
		0.85	61.46						
1.0 Clayey very sandy GRAVEL with high cobble and boulder content <350mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.									
				1 (Slow)	AA85688	B	1.40		
OBSTRUCTION - Large quantities of cobble and boulders		1.68	60.63						
End of Trial Pit at 1.70m		1.70	60.61						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP33**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,323.46 E 723,840.85 N
		DATE STARTED	31/10/2018
		DATE COMPLETED	31/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.79
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
		0.40	62.39						
Light brown/grey very sandy very gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.65	62.14			Env	0.60		
Silty very sandy GRAVEL with high cobble content. Sand is fine to coarse, angular to subrounded.					AA85680	B	0.60		
1.0					AA85681	B	1.40		
				1 (Seepage)					
		1.98	60.81						
2.0 OBSTRUCTION - Large quantities of cobble and boulders		2.00	60.79						
End of Trial Pit at 2.00m									
3.0									
4.0									

Groundwater Conditions

Stability
Unstable at 1.8

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP34**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,293.34 E 723,825.31 N
		DATE STARTED	01/11/2018
		DATE COMPLETED	01/11/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.32
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL		0.30	62.02						
Brown/grey/orange sandy slightly gravelly SILT/CLAY with rare boulder <350mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85685	Env B	0.70 0.80		
Clayey very sandy GRAVEL with high cobble and boulder content <350mm. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		1.05	61.27		AA85686	B	1.50		
OBSTRUCTION - Large quantities of cobble and boulders		2.08	60.24	1 (Slow)					
End of Trial Pit at 2.10m		2.10	60.22						

Groundwater Conditions

Stability

General Remarks

IGSL TP LOG 21319BH.GPJ IGSL.GDT 16/11/18

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP35**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	72,223.34 E 723,821.67 N
		DATE STARTED	31/10/2018
		DATE COMPLETED	31/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.01
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	61.71						
Brown mottled grey sandy gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85678	B	0.60		
1.0									
Silty very sandy GRAVEL with high cobble content. Sand is fine to coarse, angular to subrounded.		1.50	60.51		AA85679	B	1.60		
OBSTRUCTION - Large quantities of cobble and boulders		1.78	60.23						
End of Trial Pit at 1.80m		1.80	60.21						
2.0									
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP36**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,342.27 E 723,811.31 N
		DATE STARTED	31/10/2018
		DATE COMPLETED	31/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.75
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Brown mottled grey sandy gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.		0.40	62.35		AA85650	B Env	0.60 0.70		
1.0 Silty very sandy GRAVEL with high cobble content. Sand is fine to coarse, angular to subrounded.		1.05	61.70	1 (Slow)					
2.0 OBSTRUCTION - Large quantities of cobble and boulders		2.08	60.67						
End of Trial Pit at 2.10m		2.10	60.65						
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 21319

CONTRACT	Priorsland,Carrickmines, Dublin 18	**TRIAL PIT NO.**	**TP37**
		SHEET	Sheet 1 of 1
LOGGED BY	SC	**CO-ORDINATES**	722,366.73 E 723,806.13 N
		DATE STARTED	31/10/2018
		DATE COMPLETED	31/10/2018
CLIENT	Lioncor Developments	**GROUND LEVEL (m)**	62.64
ENGINEER	Punch C.E	**EXCAVATION METHOD**	JCB

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.40	62.24						
Brown mottled grey sandy gravelly CLAY/SILT. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded.					AA85675	Env B	0.80 0.80		
1.0 Clayey gravelly SAND with high cobble and low boulder content. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded. Boulders <400mm		1.30	61.34	1 (Slow)					
2.0 OBSTRUCTION		2.03	60.61						
End of Trial Pit at 2.05m		2.05	60.59						
3.0									
4.0									

Groundwater Conditions

Stability

General Remarks

Appendix 4 Dynamic Probe Records

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP01**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

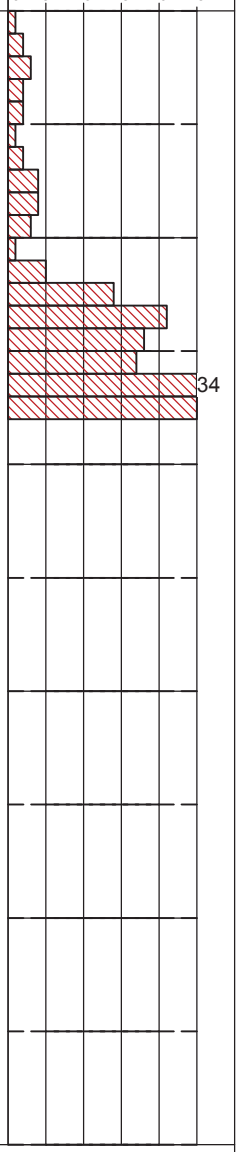
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	3
						0.30	2
						0.40	2
						0.50	1
						0.60	2
						0.70	4
						0.80	4
						0.90	3
1.0						1.00	1
						1.10	5
						1.20	14
						1.30	21
						1.40	18
						1.50	17
						1.60	34
						1.70	25
	End of Probe at 1.80 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP011**

SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

INCREMENT SIZE (mm) 100

FALL HEIGHT (mm) 500

DATE DRILLED

DATE LOGGED

CLIENT Lioncor Developments

ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	2
						0.30	2
						0.40	1
						0.50	5
						0.60	5
						0.70	2
						0.80	12
						0.90	13
1.0						1.00	31
						1.10	26
						1.20	28
						1.30	25
	End of Probe at 1.40 m						
2.0							
3.0							
4.0							

Graphic Probe Record

0 5 10 15 20 25

31
26
28

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP02

SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

DATE DRILLED 30/11/2018

DATE LOGGED 30/11/2018

HAMMER MASS (kg) 50

INCREMENT SIZE (mm) 100

FALL HEIGHT (mm) 500

CLIENT Lioncor Developments

ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	2
						0.30	2
						0.40	2
						0.50	2
						0.60	2
						0.70	5
						0.80	9
						0.90	7
1.0						1.00	14
						1.10	16
						1.20	18
						1.30	22
						1.40	28
						1.50	25
	End of Probe at 1.60 m						
2.0							
3.0							
4.0							

Graphic Probe Record

0 5 10 15 20 25

28

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP03**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	3
						0.30	3
						0.40	1
						0.50	0
						0.60	1
						0.70	1
						0.80	2
						0.90	5
1.0						1.00	3
						1.10	2
						1.20	3
						1.30	3
						1.40	4
						1.50	9
						1.60	17
						1.70	23
						1.80	25
	End of Probe at 1.90 m						
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP04**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	6
						0.10	3
						0.20	3
						0.30	3
						0.40	2
						0.50	1
						0.60	1
						0.70	0
						0.80	0
						0.90	5
1.0						1.00	7
						1.10	3
						1.20	2
						1.30	2
						1.40	3
						1.50	2
						1.60	6
						1.70	12
						1.80	29
						1.90	31
2.0						2.00	25
	End of Probe at 2.10 m						
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP05**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

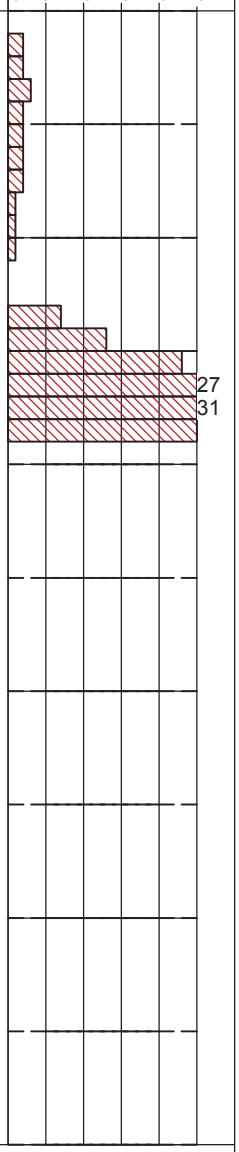
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	2
						0.20	2
						0.30	3
						0.40	2
						0.50	2
						0.60	2
						0.70	2
						0.80	1
						0.90	1
1.0						1.00	1
						1.10	0
						1.20	0
						1.30	7
						1.40	13
						1.50	23
						1.60	27
						1.70	31
						1.80	25
	End of Probe at 1.90 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP06**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

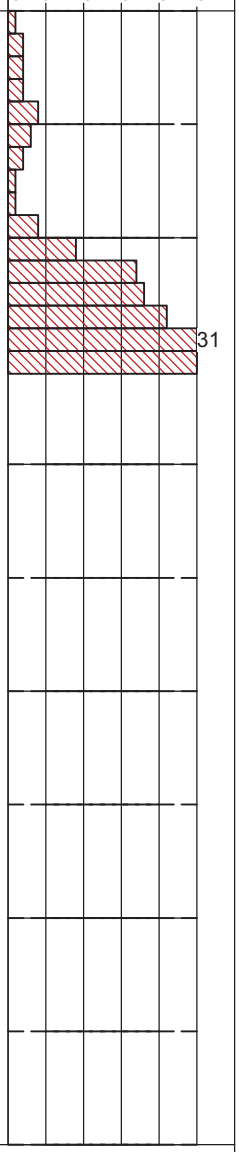
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	2
						0.30	2
						0.40	4
						0.50	3
						0.60	2
						0.70	1
						0.80	1
						0.90	4
1.0						1.00	9
						1.10	17
						1.20	18
						1.30	21
						1.40	31
						1.50	25
	End of Probe at 1.60 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP07
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

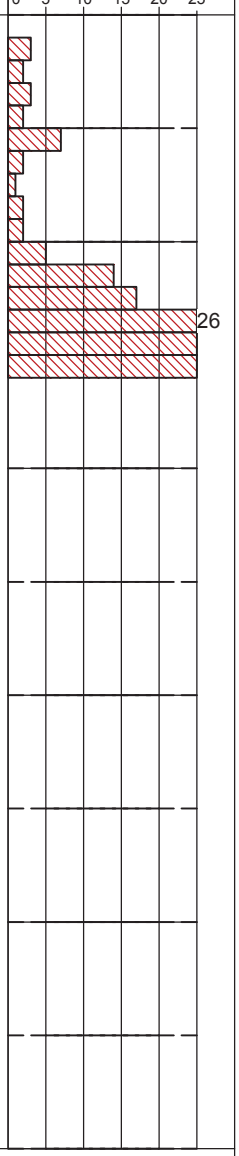
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	3
						0.20	2
						0.30	3
						0.40	2
						0.50	7
						0.60	2
						0.70	1
						0.80	2
						0.90	2
1.0						1.00	5
						1.10	14
						1.20	17
						1.30	26
						1.40	25
						1.50	25
	End of Probe at 1.60 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP08**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	1
						0.20	0
						0.30	0
						0.40	11
						0.50	9
						0.60	4
						0.70	3
						0.80	6
						0.90	12
1.0						1.00	23
						1.10	17
						1.20	14
						1.30	15
						1.40	13
						1.50	16
						1.60	21
						1.70	23
						1.80	25
	End of Probe at 1.90 m						
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP09
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

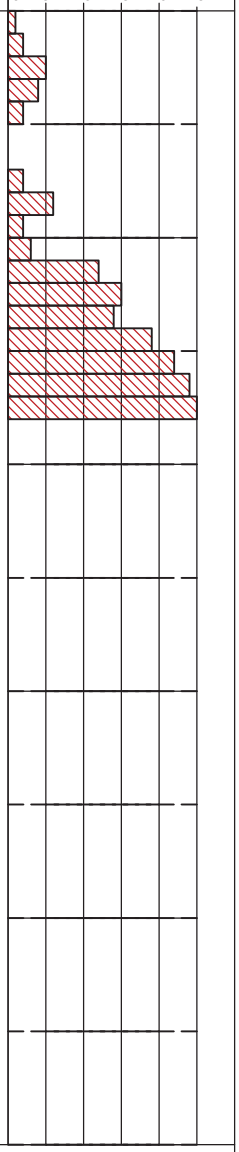
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	5
						0.30	4
						0.40	2
						0.50	0
						0.60	0
						0.70	2
						0.80	6
						0.90	2
1.0						1.00	3
						1.10	12
						1.20	15
						1.30	14
						1.40	19
						1.50	22
						1.60	24
						1.70	25
	End of Probe at 1.80 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP10**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

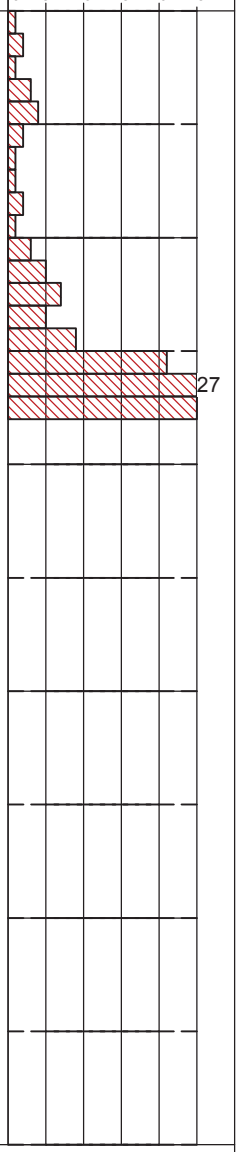
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	1
						0.30	3
						0.40	4
						0.50	2
						0.60	1
						0.70	1
						0.80	2
						0.90	1
1.0						1.00	3
						1.10	5
						1.20	7
						1.30	5
						1.40	9
						1.50	21
						1.60	27
						1.70	25
	End of Probe at 1.80 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP12
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

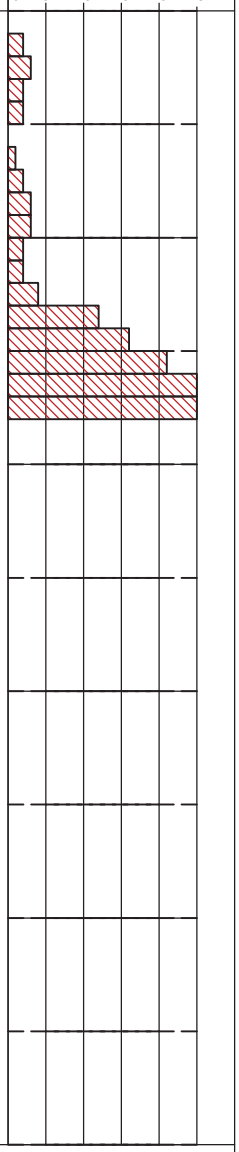
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	2
						0.20	3
						0.30	2
						0.40	2
						0.50	0
						0.60	1
						0.70	2
						0.80	3
						0.90	3
1.0						1.00	2
						1.10	2
						1.20	4
						1.30	12
						1.40	16
						1.50	21
						1.60	25
	End of Probe at 1.80 m					1.70	25
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP13**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	2
						0.20	3
						0.30	2
						0.40	2
						0.50	2
						0.60	2
						0.70	3
						0.80	1
						0.90	1
1.0						1.00	0
						1.10	3
						1.20	4
						1.30	1
						1.40	7
						1.50	3
						1.60	3
						1.70	4
						1.80	12
						1.90	11
2.0						2.00	14
						2.10	19
						2.20	23
						2.30	25
	End of Probe at 2.40 m						
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP14
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

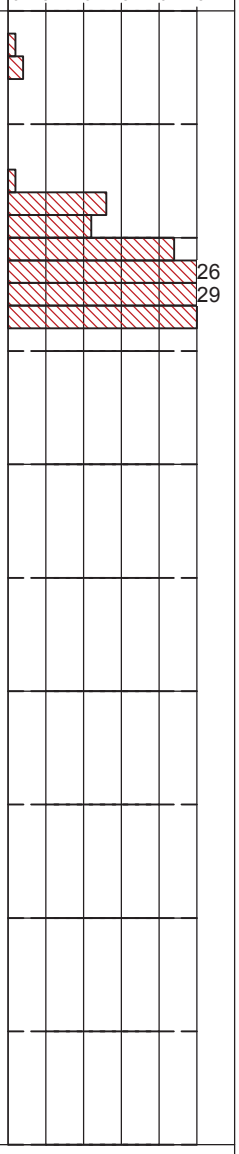
DATE DRILLED 30/11/2018
DATE LOGGED 30/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	1
						0.20	2
						0.30	0
						0.40	0
						0.50	0
						0.60	0
						0.70	1
						0.80	13
						0.90	11
1.0						1.00	22
						1.10	26
						1.20	29
						1.30	25
	End of Probe at 1.40 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP15**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

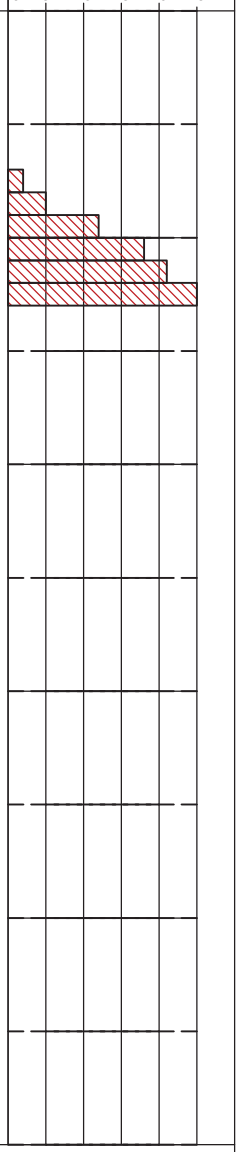
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	0
						0.20	0
						0.30	0
						0.40	0
						0.50	0
						0.60	0
						0.70	2
						0.80	5
						0.90	12
1.0						1.00	18
						1.10	21
	End of Probe at 1.30 m					1.20	25
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP16**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

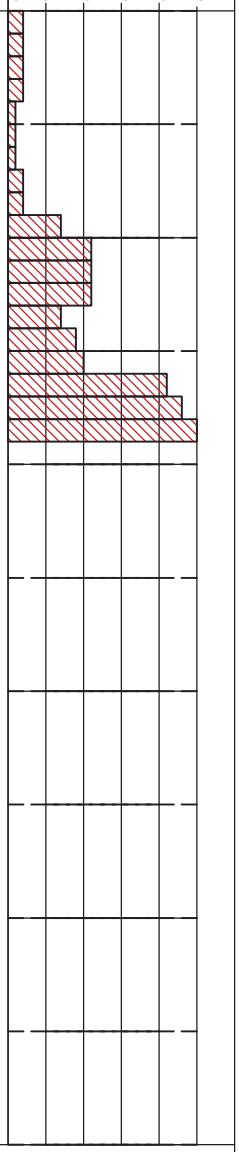
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	2
						0.10	2
						0.20	2
						0.30	2
						0.40	1
						0.50	1
						0.60	1
						0.70	2
						0.80	2
						0.90	7
1.0						1.00	11
						1.10	11
						1.20	11
						1.30	7
						1.40	9
						1.50	10
						1.60	21
						1.70	23
						1.80	25
	End of Probe at 1.90 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP17**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	1
						0.20	3
						0.30	2
						0.40	3
						0.50	1
						0.60	2
						0.70	2
						0.80	2
						0.90	3
1.0						1.00	3
						1.10	9
						1.20	9
						1.30	10
						1.40	8
						1.50	10
						1.60	9
						1.70	9
						1.80	8
						1.90	9
2.0						2.00	16
	End of Probe at 2.20 m					2.10	25
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP18**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

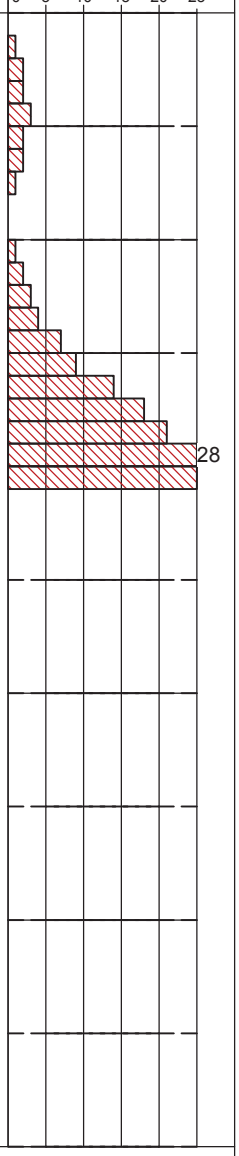
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	1
						0.20	2
						0.30	2
						0.40	3
						0.50	2
						0.60	2
						0.70	1
						0.80	0
						0.90	0
1.0						1.00	1
						1.10	2
						1.20	3
						1.30	4
						1.40	7
						1.50	9
						1.60	14
						1.70	18
						1.80	21
						1.90	28
2.0	End of Probe at 2.10 m					2.00	25
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP19**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	0
						0.20	0
						0.30	1
						0.40	2
						0.50	2
						0.60	2
						0.70	8
						0.80	4
						0.90	13
1.0						1.00	22
						1.10	22
						1.20	25
	End of Probe at 1.30 m						
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP20**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

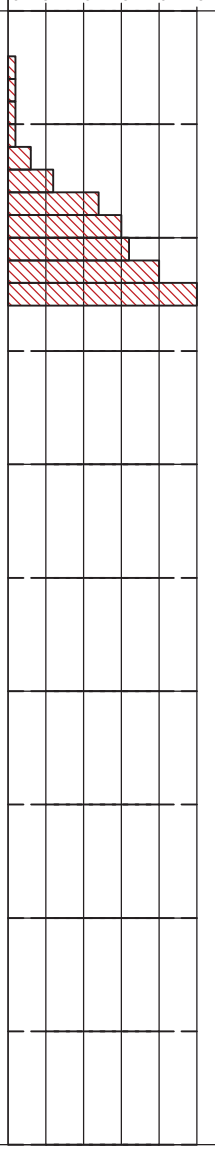
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	0
						0.20	1
						0.30	1
						0.40	1
						0.50	1
						0.60	3
						0.70	6
						0.80	12
						0.90	15
1.0						1.00	16
						1.10	20
	End of Probe at 1.30 m					1.20	25
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP21**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

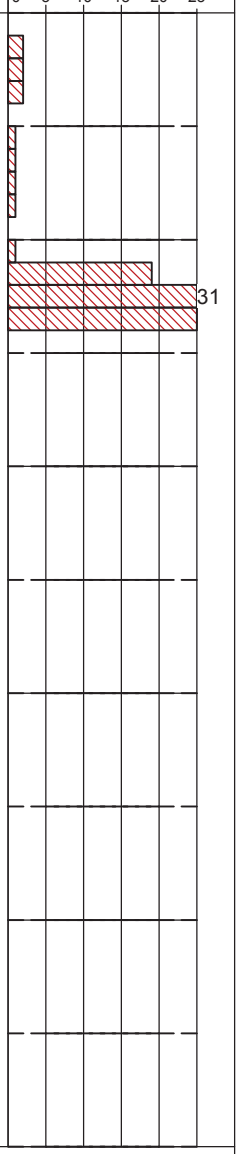
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	2
						0.20	2
						0.30	2
						0.40	0
						0.50	1
						0.60	1
						0.70	1
						0.80	1
						0.90	0
1.0						1.00	1
						1.10	19
						1.20	31
						1.30	25
	End of Probe at 1.40 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP22**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

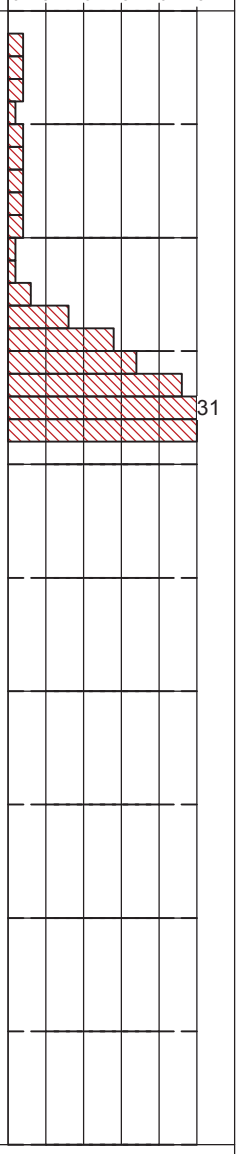
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	2
						0.20	2
						0.30	2
						0.40	1
						0.50	2
						0.60	2
						0.70	2
						0.80	2
						0.90	2
1.0						1.00	1
						1.10	1
						1.20	3
						1.30	8
						1.40	14
						1.50	17
						1.60	23
						1.70	31
						1.80	25
	End of Probe at 1.90 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP23**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	2
						0.10	3
						0.20	2
						0.30	2
						0.40	2
						0.50	2
						0.60	1
						0.70	1
						0.80	1
						0.90	3
1.0						1.00	6
						1.10	8
						1.20	6
						1.30	9
						1.40	8
						1.50	7
						1.60	8
						1.70	12
						1.80	13
						1.90	21
2.0						2.00	23
	End of Probe at 2.20 m					2.10	25
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP24**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	3
						0.20	2
						0.30	3
						0.40	2
						0.50	2
						0.60	3
						0.70	2
						0.80	1
						0.90	0
1.0						1.00	3
						1.10	6
						1.20	9
						1.30	7
						1.40	6
						1.50	7
						1.60	16
						1.70	18
						1.80	21
						1.90	23
2.0						2.00	25
	End of Probe at 2.10 m						
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP25**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

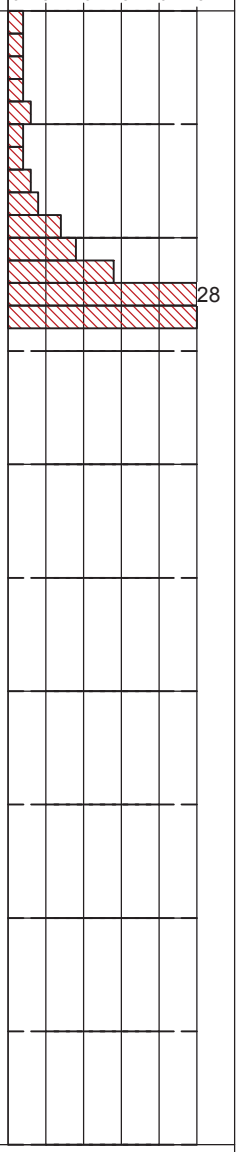
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	2
						0.10	2
						0.20	2
						0.30	2
						0.40	3
						0.50	2
						0.60	2
						0.70	3
						0.80	4
						0.90	7
1.0						1.00	9
						1.10	14
						1.20	28
						1.30	25
	End of Probe at 1.40 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP26**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

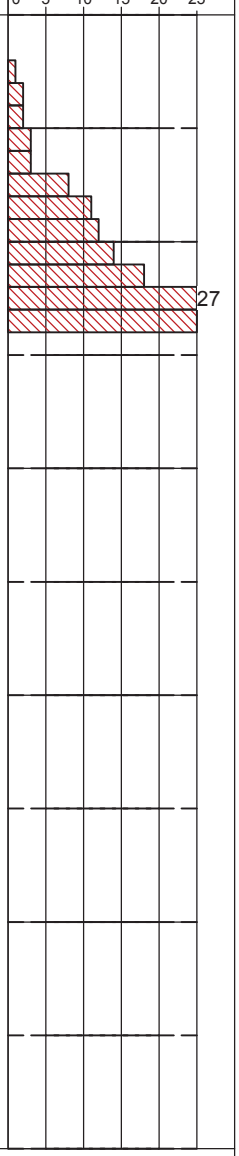
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	0
						0.20	1
						0.30	2
						0.40	2
						0.50	3
						0.60	3
						0.70	8
						0.80	11
						0.90	12
1.0						1.00	14
						1.10	18
						1.20	27
						1.30	25
	End of Probe at 1.40 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP27
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

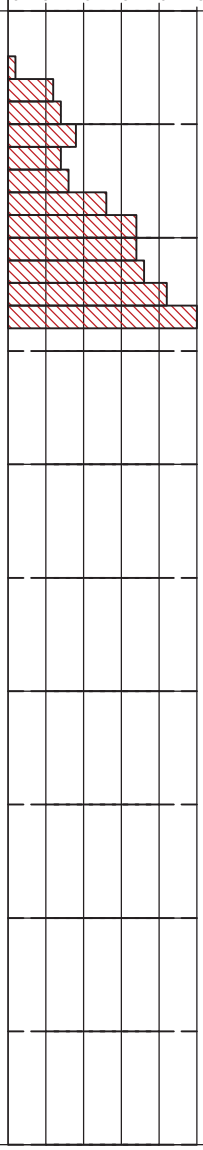
DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	0
						0.20	1
						0.30	6
						0.40	7
						0.50	9
						0.60	7
						0.70	8
						0.80	13
						0.90	17
1.0						1.00	17
						1.10	18
						1.20	21
						1.30	25
	End of Probe at 1.40 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP28**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	0
						0.20	0
						0.30	0
						0.40	0
						0.50	0
						0.60	0
						0.70	0
						0.80	2
						0.90	3
1.0						1.00	12
						1.10	17
						1.20	19
						1.30	23
						1.40	25
	End of Probe at 1.50 m						
2.0							
3.0							
4.0							

Graphic Probe Record

0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP29**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 29/11/2018
DATE LOGGED 29/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	2
						0.30	1
						0.40	1
						0.50	0
						0.60	2
						0.70	7
						0.80	15
						0.90	22
1.0						1.00	24
	End of Probe at 1.20 m					1.10	25
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP30**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	2
						0.10	3
						0.20	3
						0.30	3
						0.40	2
						0.50	1
						0.60	2
						0.70	3
						0.80	9
						0.90	9
1.0						1.00	20
						1.10	24
						1.20	25
	End of Probe at 1.30 m						
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP31
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

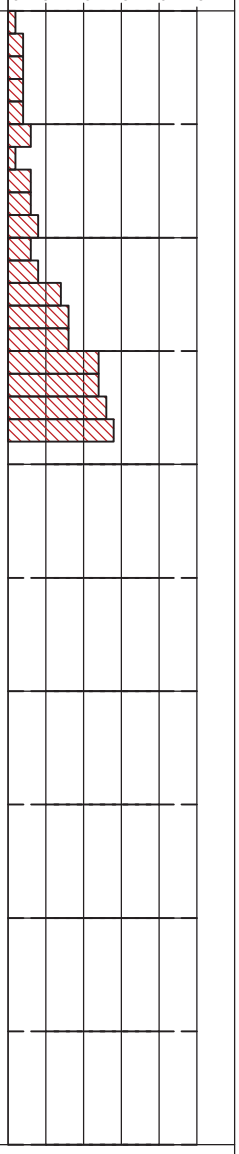
DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	2
						0.30	2
						0.40	2
						0.50	3
						0.60	1
						0.70	3
						0.80	3
						0.90	4
1.0						1.00	3
						1.10	4
						1.20	7
						1.30	8
						1.40	8
						1.50	12
						1.60	12
						1.70	13
						1.80	14
	End of Probe at 1.90 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP32
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	2
						0.10	3
						0.20	5
						0.30	5
						0.40	4
						0.50	4
						0.60	1
						0.70	1
						0.80	5
						0.90	15
1.0						1.00	20
						1.10	22
	End of Probe at 1.30 m					1.20	25
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP33**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	2
						0.10	1
						0.20	1
						0.30	1
						0.40	1
						0.50	6
						0.60	8
						0.70	8
						0.80	6
						0.90	7
1.0						1.00	10
						1.10	11
						1.20	13
						1.30	15
						1.40	19
						1.50	25
	End of Probe at 1.60 m						
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP34
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	3
						0.10	3
						0.20	4
						0.30	4
						0.40	4
						0.50	2
						0.60	0
						0.70	0
						0.80	0
						0.90	0
1.0						1.00	0
						1.10	0
						1.20	2
						1.30	11
						1.40	23
						1.50	25
	End of Probe at 1.60 m						
2.0							
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP35**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	1
						0.10	2
						0.20	1
						0.30	1
						0.40	2
						0.50	3
						0.60	0
						0.70	0
						0.80	1
						0.90	2
1.0						1.00	4
						1.10	5
						1.20	9
						1.30	12
						1.40	18
						1.50	25
	End of Probe at 1.60 m						
2.0							
3.0							
4.0							

Graphic Probe Record

0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. DP36
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

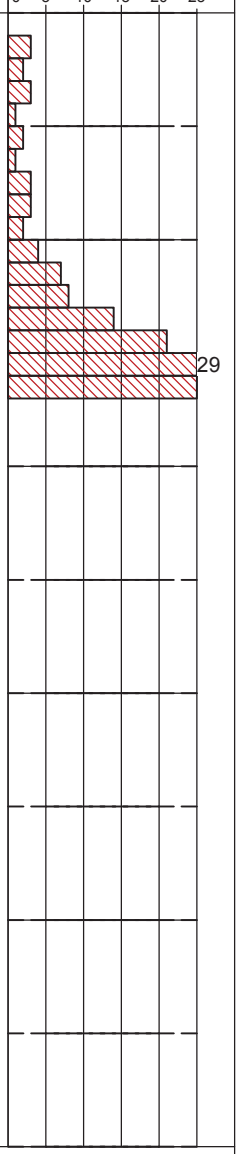
DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	0
						0.10	3
						0.20	2
						0.30	3
						0.40	1
						0.50	2
						0.60	1
						0.70	3
						0.80	3
						0.90	2
1.0						1.00	4
						1.10	7
						1.20	8
						1.30	14
						1.40	21
						1.50	29
						1.60	25
	End of Probe at 1.70 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

DYNAMIC PROBE RECORD

REPORT NUMBER 21319

CONTRACT Priorsland , Carrickmines,Dublin

PROBE NO. **DP37**
SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50
INCREMENT SIZE (mm) 100
FALL HEIGHT (mm) 500

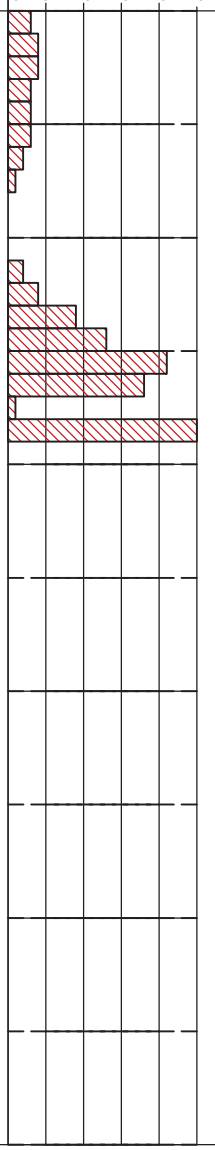
DATE DRILLED 28/11/2018
DATE LOGGED 28/11/2018

CLIENT Lioncor Developments
ENGINEER Punch C.E

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.					0.00	3
						0.10	4
						0.20	4
						0.30	3
						0.40	3
						0.50	3
						0.60	2
						0.70	1
						0.80	0
						0.90	0
1.0						1.00	0
						1.10	2
						1.20	4
						1.30	9
						1.40	13
						1.50	21
						1.60	18
						1.70	1
						1.80	25
	End of Probe at 1.90 m						
2.0							
3.0							
4.0							

Graphic Probe Record



GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 21319DP.GPJ IGSL.GDT 3/12/18

Appendix 5 Infiltration Test Results

Soakaway Design f -value from field tests (F2C) IGSL

Contract: Priorsland, Rathmines, Dublin 18 Contract No. 21319
Test No. SA01
Client Lioncor Developments
Date: 30/10/2018

Summary of ground conditions

from	to	Description	Ground water
0.00	0.25	Topsoil	None
0.25	1.50	Stiff brown sandy slightly gravelly SILT/CLAY.	

Field Data

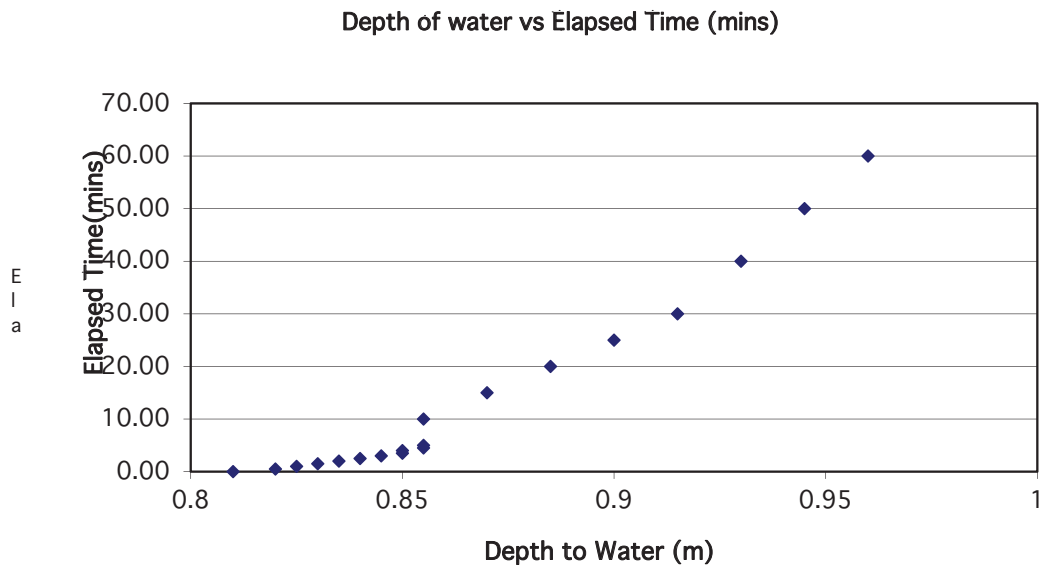
Depth to Water (m)	Elapsed Time (min)
0.81	0.00
0.82	0.50
0.825	1.00
0.83	1.50
0.835	2.00
0.84	2.50
0.845	3.00
0.85	3.50
0.85	4.00
0.855	4.50
0.855	5.00
0.855	10.00
0.87	15.00
0.885	20.00
0.9	25.00
0.915	30.00
0.93	40.00
0.945	50.00
0.96	60.00

Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.45	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.81	m
Final depth to water =	0.96	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.9	m2
*Av. side area of permeable stratum over test perio	3.0135	m2
Total Exposed area =	3.9135	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0.00057 m/min or 9.582E-06 m/sec



Soakaway Design f -value from field tests (F2C) IGSL

Contract: Priorsland, Rathmines, Dublin 18 Contract No. 21319
Test No. SA05
Client Lioncor Developments
Date: 30/10/2018

Summary of ground conditions

from	to	Description	Ground water
0.00	0.25	Topsoil	
0.25	0.50	Firm dark brown sandy peaty SILT/CLAY	1.35m
0.50	1.40	Dense very sandy GRAVEL with medium cobble content	

Notes: Refusal at 1.4m - Obstruction - Possible bedrock

Field Data

Depth to Water (m)	Elapsed Time (min)
0.61	0.00
0.615	0.50
0.615	1.00
0.62	1.50
0.62	2.00
0.62	2.50
0.62	3.00
0.62	3.50
0.62	4.00
0.62	4.50
0.62	5.00
0.625	10.00
0.625	15.00
0.625	20.00
0.63	25.00
0.63	30.00
0.63	40.00
0.63	50.00
0.63	60.00

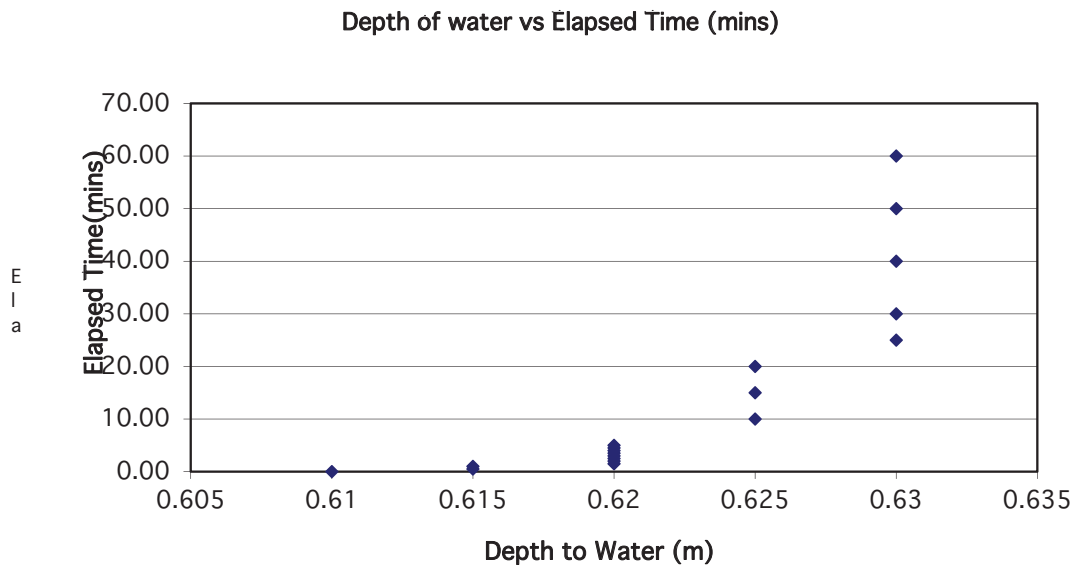
Field Test

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.45	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.61	m
Final depth to water =	0.63	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.9	m2
*Av. side area of permeable stratum over test perio	3.822	m2
Total Exposed area =	4.722	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 6.4E-05 m/min or 1.059E-06 m/sec

Note: No fall in water after 25 minutes



Soakaway Design f -value from field tests (F2C) IGSL

Contract: Priorsland, Rathmines, Dublin 18 Contract No. 21319
Test No. SA03
Client Lioncor Developments
Date: 01/10/2018

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	Topsoil	None encountered
0.30	0.60	Stiff brown sandy slightly gravelly SILT/CLAY.	
0.60	1.50	Dense silty very sandy GRAVEL	

Notes:

Field Data

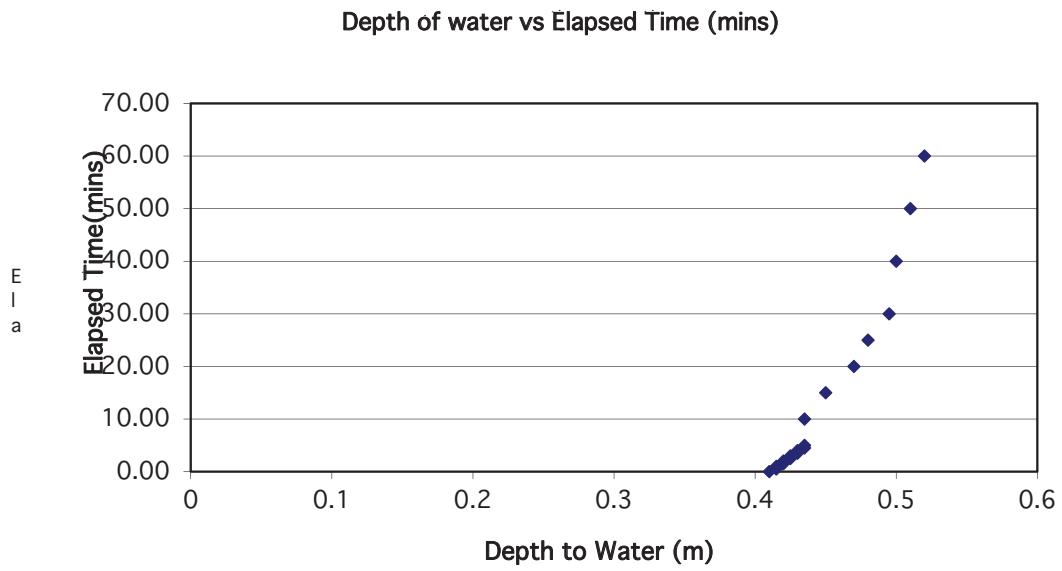
Depth to Water (m)	Elapsed Time (min)
0.41	0.00
0.415	0.50
0.415	1.00
0.42	1.50
0.42	2.00
0.425	2.50
0.425	3.00
0.43	3.50
0.43	4.00
0.435	4.50
0.435	5.00
0.435	10.00
0.45	15.00
0.47	20.00
0.48	25.00
0.495	30.00
0.5	40.00
0.51	50.00
0.52	60.00

Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.40	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.41	m
Final depth to water =	0.52	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.8	m2
*Av. side area of permeable stratum over test perio	4.968	m2
Total Exposed area =	5.768	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0.00025 m/min or 4.238E-06 m/sec



Soakaway Design f -value from field tests (F2C) IGSL

Contract: Priorsland, Rathmines, Dublin 18 Contract No. 21319
Test No. SA04
Client Lioncor Developments
Date: 01/10/2018

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	Topsoil	None encountered
0.30	0.60	Stiff brown sandy slightly gravelly SILT/CLAY.	
0.60	1.50	Dense silty very sandy GRAVEL	

Notes:

Field Data

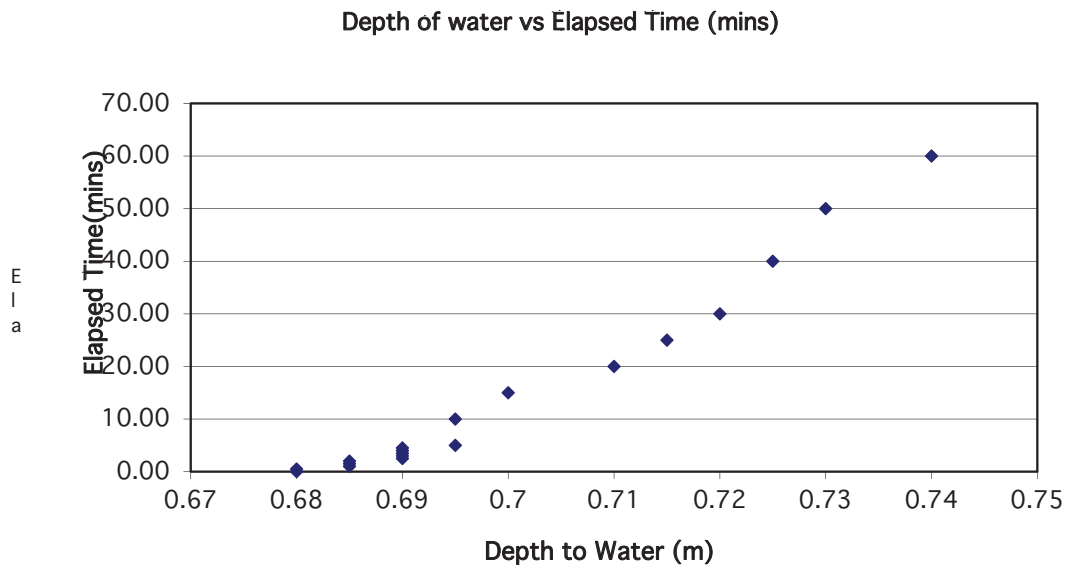
Depth to Water (m)	Elapsed Time (min)
0.68	0.00
0.68	0.50
0.685	1.00
0.685	1.50
0.685	2.00
0.69	2.50
0.69	3.00
0.69	3.50
0.69	4.00
0.69	4.50
0.695	5.00
0.695	10.00
0.7	15.00
0.71	20.00
0.715	25.00
0.72	30.00
0.725	40.00
0.73	50.00
0.74	60.00

Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.40	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.68	m
Final depth to water =	0.74	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.8	m2
*Av. side area of permeable stratum over test perio	3.792	m2
Total Exposed area =	4.592	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0.00017 m/min or 2.904E-06 m/sec



Soakaway Design f -value from field tests (F2C) IGSL

Contract: Priorsland, Rathmines, Dublin 18 Contract No. 21319
Test No. SA05
Client Lioncor Developments
Date: 01/11/2018

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	Topsoil	None encountered
0.30	0.85	Stiff brown sandy slightly gravelly SILT/CLAY.	
0.85	1.50	Dense sandy GRAVEL with low cobble content	

Notes:

Field Data

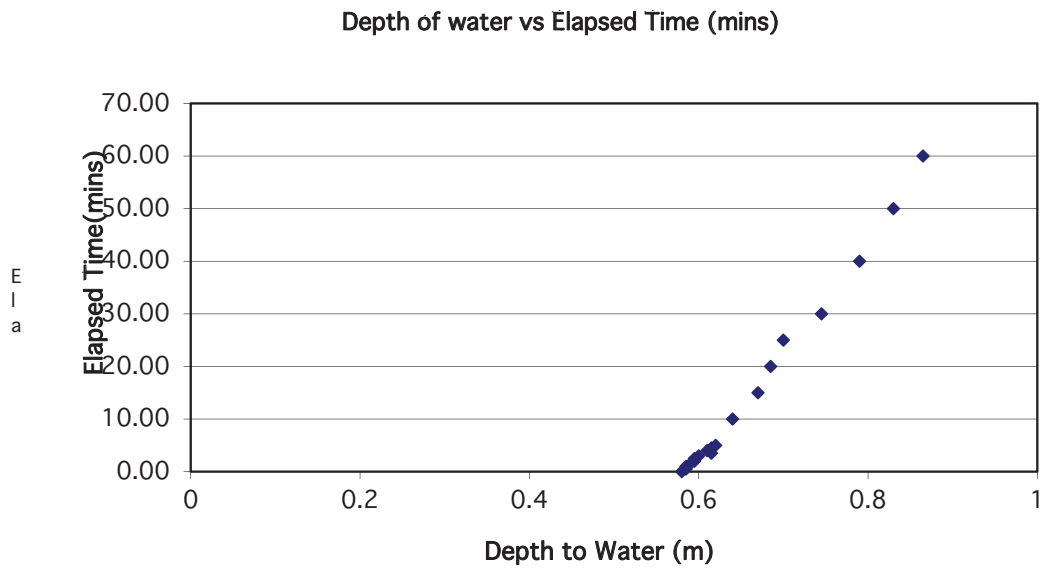
Depth to Water (m)	Elapsed Time (min)
0.58	0.00
0.585	0.50
0.585	1.00
0.59	1.50
0.595	2.00
0.595	2.50
0.6	3.00
0.615	3.50
0.61	4.00
0.615	4.50
0.62	5.00
0.64	10.00
0.67	15.00
0.685	20.00
0.7	25.00
0.745	30.00
0.79	40.00
0.83	50.00
0.865	60.00

Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.45	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.58	m
Final depth to water =	0.87	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.9	m2
*Av. side area of permeable stratum over test perio	3.80975	m2
Total Exposed area =	4.70975	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0.00091 m/min or 1.513E-05 m/sec



Appendix 6 Laboratory Test Results (Geotechnical)

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2*, 4.3, 4.4 & 5.3

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO.133T

Report No. **R96603** Contract No. 21319 Contract Name: Priorsland , Carrickmines,Co.Dublin

Customer Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin

Samples Received: 30/11/18 Date Tested: 05/12/18

BH/TP	Sample No.	Depth (m)	Lab. Ref	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
BH01A	AA93615	2.0	A18/9346	B	13	37	NP	NP	25	WS	4.4		Brown very sandy gravelly SILT
BH03	AA93638	1.0	A18/9349	B	13	46	NP	NP	40	WS	4.4		Brown sandy gravelly SILT
BH05	AA93627	2.0	A18/9353	B	6.4	29	NP	NP	28	WS	4.4		Brown sandy very gravelly SILT
BH07	AA93645	2.0	A18/9357	B	4.4	32	NP	NP	24	WS	4.4		Brown silty, sandy, GRAVEL with many cobbles
BHRC04	AA96690	1.0	A18/9365	B	23	28	NP	NP	97	WS	4.4		Brown sandy gravelly SILT
TP01	AA85653	1.4	A18/9367	B	20	50	NP	NP	50	WS	4.4		Brown sandy, slightly gravelly, SILT
TP05	AA80664	1.0	A18/9370	B	6.4		NP	NP					Grey brown silty, very sandy, GRAVEL with some cobbles
TP13	AA85655	0.6	A18/9374	B	14	50	28	22	47	WS	4.4	M I	Brown sandy gravelly SILT
TP22	AA80687	1.0	A18/9376	B	21	32	NP	NP	84	WS	4.4		Brown sandy gravelly SILT
TP24	AA80680	1.0	A18/9377	B	23	28	NP	NP	98	WS	4.4		Dark brown SILT
TP26	AA80686	1.0	A18/9378	B	12	45	NP	NP	31	WS	4.4		Dark brown sandy gravelly SILT
TP29	AA85662	1.4	A18/9379	B	9.3	45	NP	NP	27	WS	4.4		Mottled brown silty, sandy, GRAVEL with some cobbles
TP31	AA85683	0.8	A18/9380	B	16	26	NP	NP	83	WS	4.4		Black sandy gravelly SILT

Notes:
Preparation: WS - Wet sieved; AR - As received; NP - Non plastic
Liquid Limit Clause: 4.3 Cone Penetrometer definitive method; 4.4 Cone Penetrometer one point method
Sample Type: B - Bulk Disturbed; U - Undisturbed

Remarks:

NOTE: *Clause 3.2 of BS1377 is a "withdrawn" standard due to publication of ISO17892-1:2014
Opinions and interpretations are outside the scope of accreditation.
The results relate to the specimens tested. Any remaining material will be retained for one month.

IGSL Ltd Materials Laboratory

Persons authorized to approve reports

H Byrne (Laboratory Manager)

Approved by: H Byrne

Date: 2/1/19

Page: 1 of 1

TEST REPORT
Determination of Particle Size Distribution

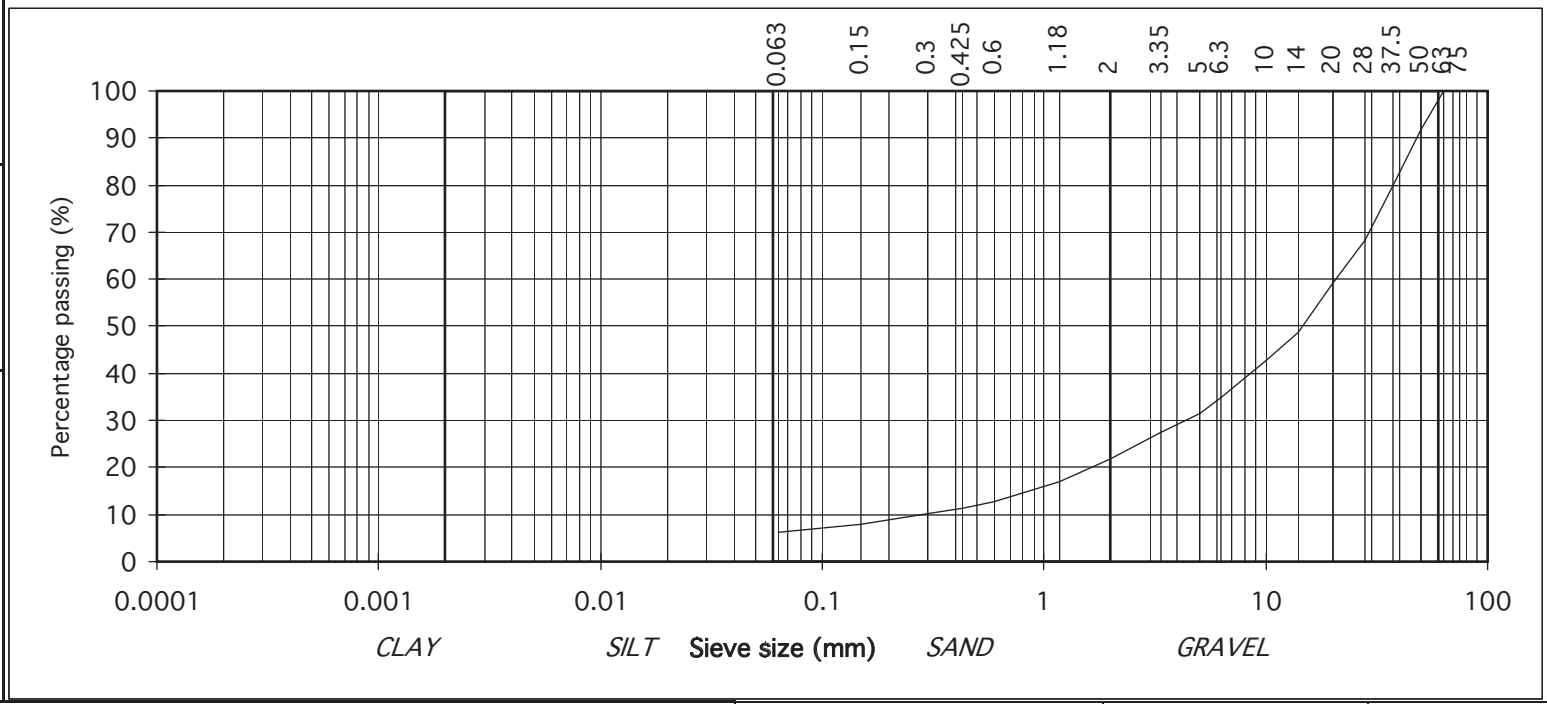
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	92	GRAVEL
37.5	80	
28	68	
20	59	
14	49	
10	43	
6.3	35	
5	32	
3.35	28	
2	22	
1.18	17	SAND
0.6	13	
0.425	11	
0.3	10	
0.15	8	
0.063	6	SILT/CLAY

Contract No: 21319 Report No. R96628
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH01A
Sample No. AA93618 Lab. Sample No. A18/9354
Sample Type: B
Depth (m) 4.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: Dark brown clayey/silty, sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	02/01/19	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

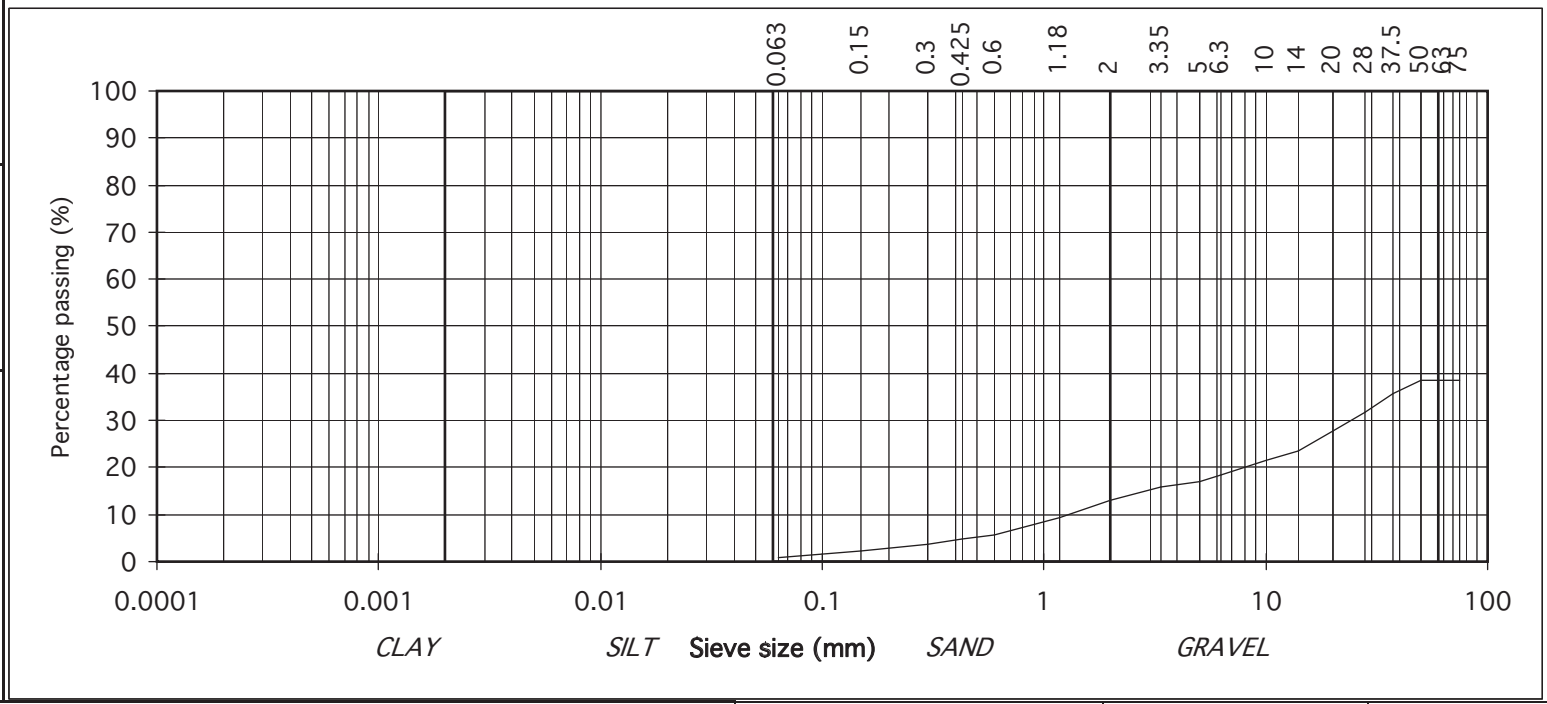
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	38	COBBLES
63	38	
50	38	GRAVEL
37.5	36	
28	32	
20	28	
14	24	
10	22	
6.3	18	
5	17	
3.35	16	
2	13	
1.18	9	SAND
0.6	6	
0.425	5	
0.3	4	
0.15	2	
0.063	1	SILT/CLAY

Contract No: 21319 Report No. R96629
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH02
Sample No. AA93623 Lab. Sample No. A18/9348
Sample Type: B
Depth (m) 3.50 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: COBBLES with black slightly clayey/silty, sandy, gravel

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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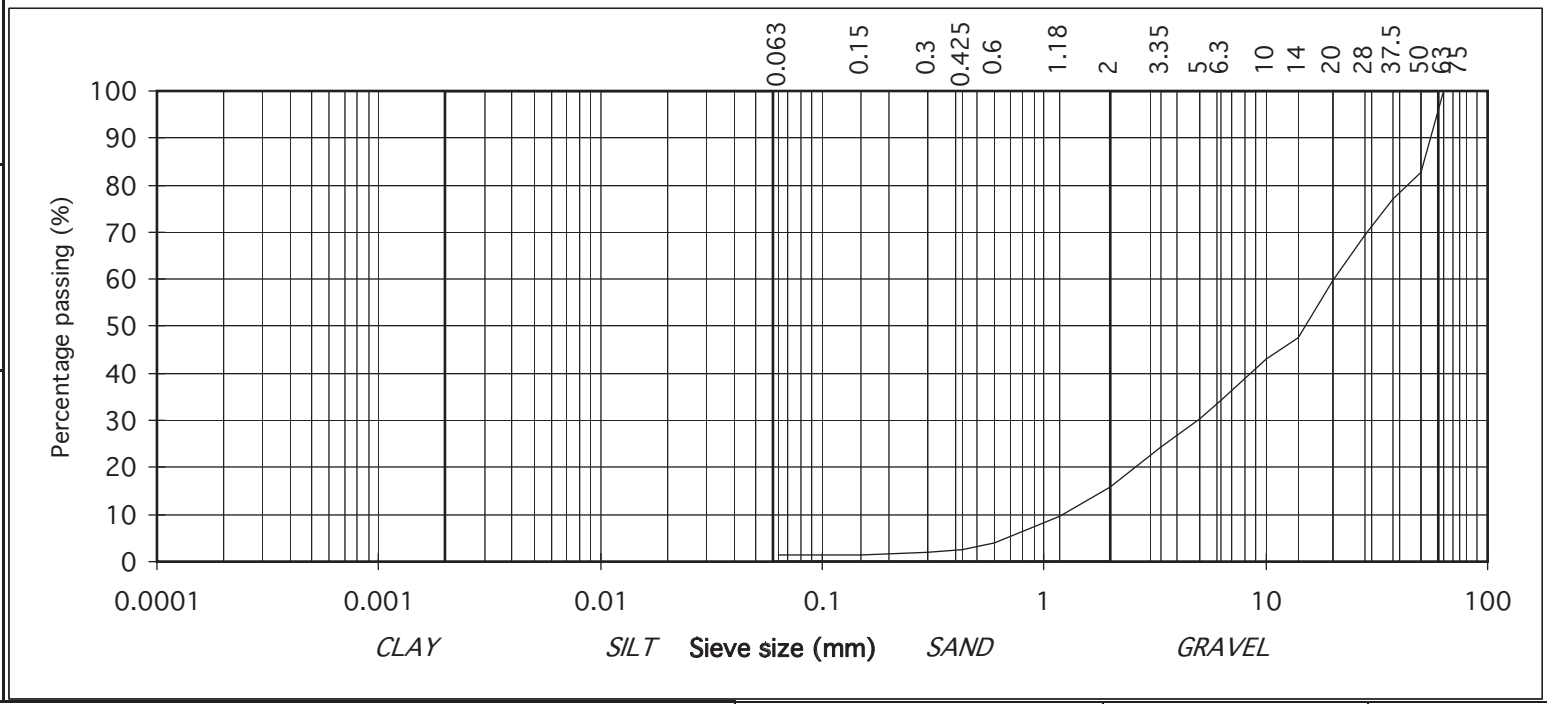
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	83	GRAVEL
37.5	77	
28	69	
20	60	
14	48	
10	43	
6.3	34	
5	30	
3.35	24	
2	16	
1.18	10	SAND
0.6	4	
0.425	3	
0.3	2	
0.15	2	
0.063	1	SILT/CLAY

Contract No: 21319 Report No. R96630
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH03
Sample No. AA93640 Lab. Sample No. A18/9350
Sample Type: B
Depth (m) 3.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: Black slightly clayey/silty, sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

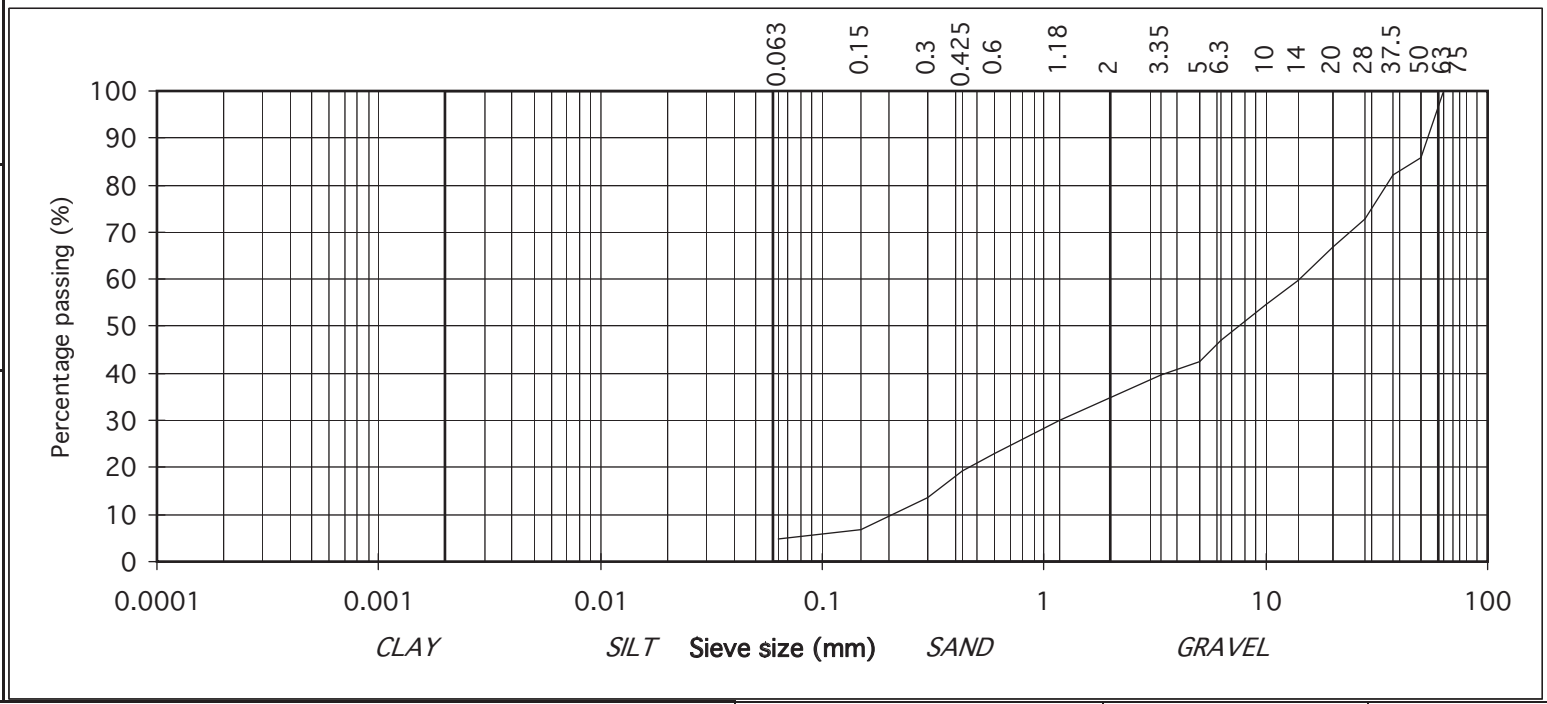
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	86	GRAVEL
37.5	82	
28	73	
20	67	
14	60	
10	55	
6.3	47	
5	43	
3.35	40	
2	35	
1.18	30	SAND
0.6	23	
0.425	19	
0.3	14	
0.15	7	
0.063	5	SILT/CLAY

Contract No: 21319 Report No. R97444
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH04
Sample No. AA96675 Lab. Sample No. A18/9351
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Grey brown slightly clayey/silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

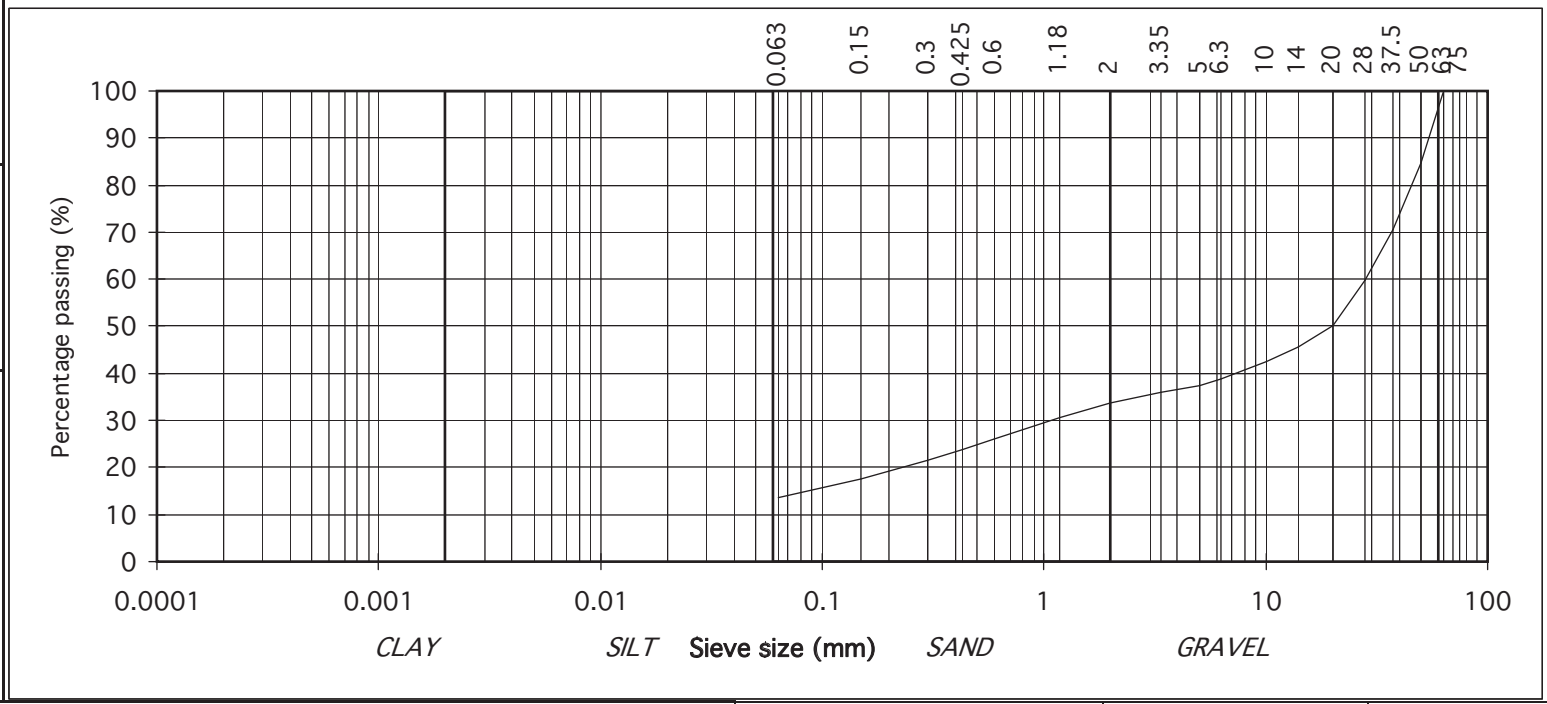
TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	85	GRAVEL
37.5	71	
28	60	
20	50	
14	46	
10	42	
6.3	39	
5	37	
3.35	36	
2	34	
1.18	31	SAND
0.6	26	
0.425	24	
0.3	21	
0.15	18	
0.063	14	SILT/CLAY

Contract No: 21319 Report No. R96631
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH04
Sample No. AA96676 Lab. Sample No. A18/9352
Sample Type: B
Depth (m) 3.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Black clayey/silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

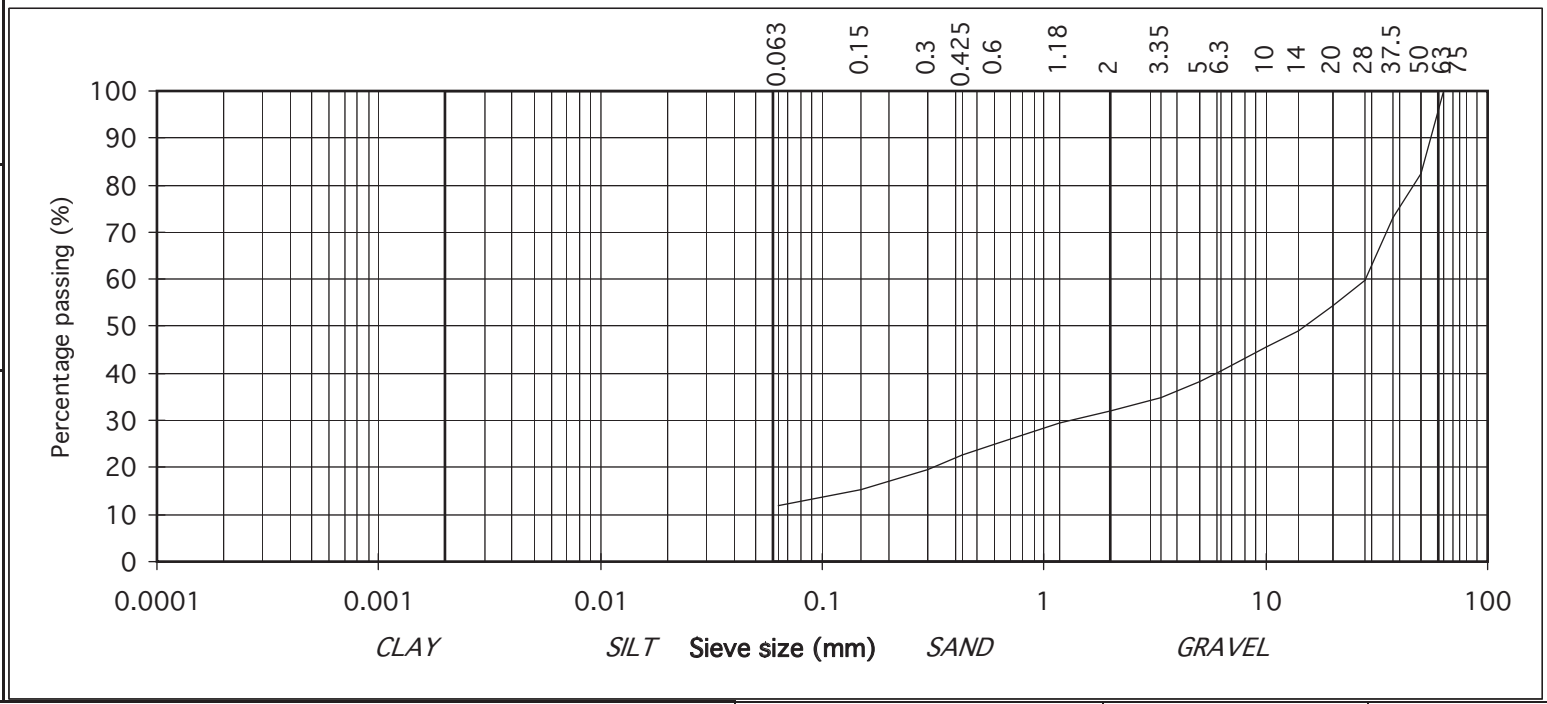
TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	82	GRAVEL
37.5	73	
28	60	
20	54	
14	49	
10	46	
6.3	40	
5	38	
3.35	35	
2	32	
1.18	30	SAND
0.6	25	
0.425	23	
0.3	20	
0.15	15	
0.063	12	SILT/CLAY

Contract No: 21319 Report No. R96632
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH05
Sample No. AA93627 Lab. Sample No. A18/9353
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: Brown silty, sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	02/01/19	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

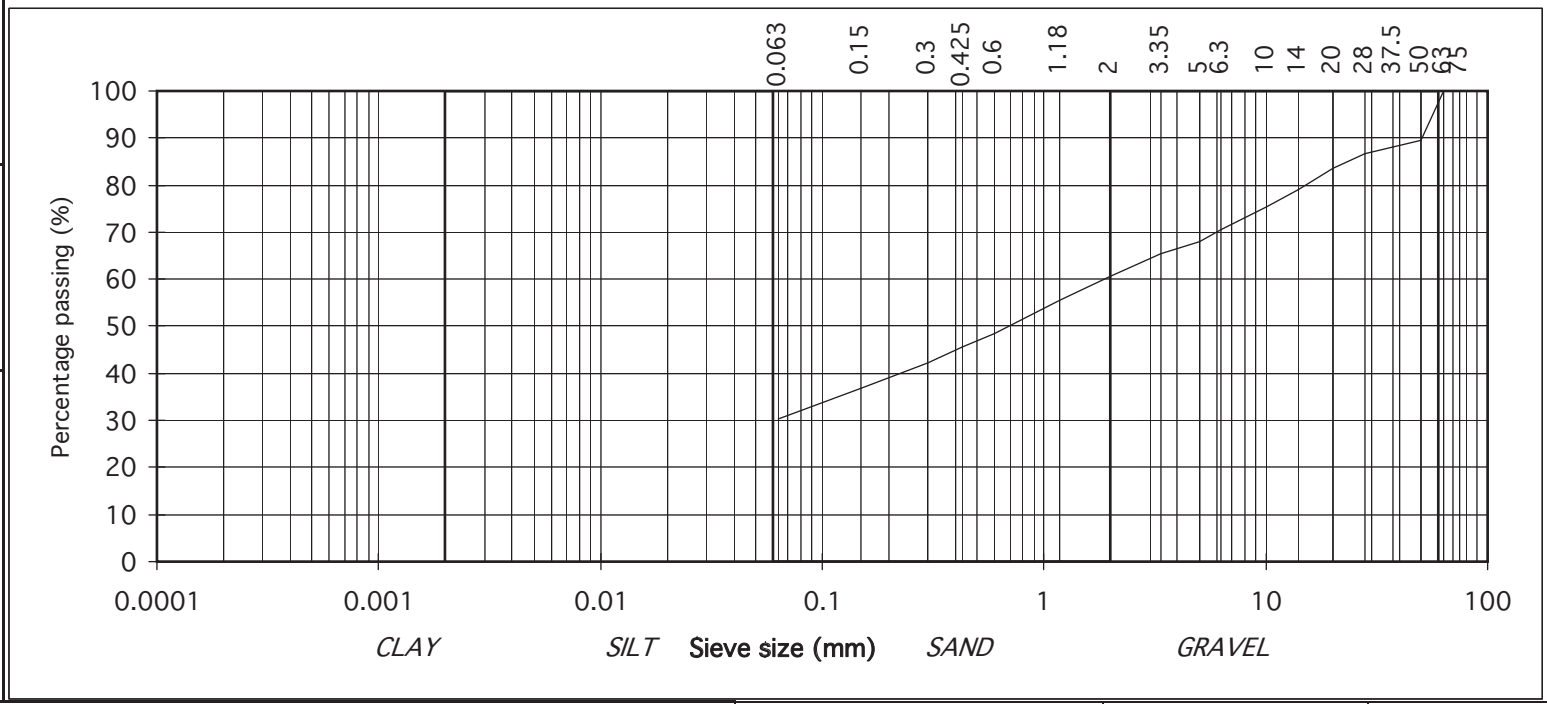
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	90	GRAVEL
37.5	88	
28	87	
20	83	
14	79	
10	75	
6.3	71	
5	68	
3.35	65	
2	61	
1.18	56	SAND
0.6	49	
0.425	46	
0.3	42	
0.15	37	
0.063	30	SILT/CLAY

Contract No: 21319 Report No. R96602
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH05
Sample No. AA93630 Lab. Sample No. A18/9354
Sample Type: B
Depth (m) 4.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 16/11/2018 Date Testing started 30/11/2018
Description: Brown/grey slightly sandy, gravelly, SILT/CLAY

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

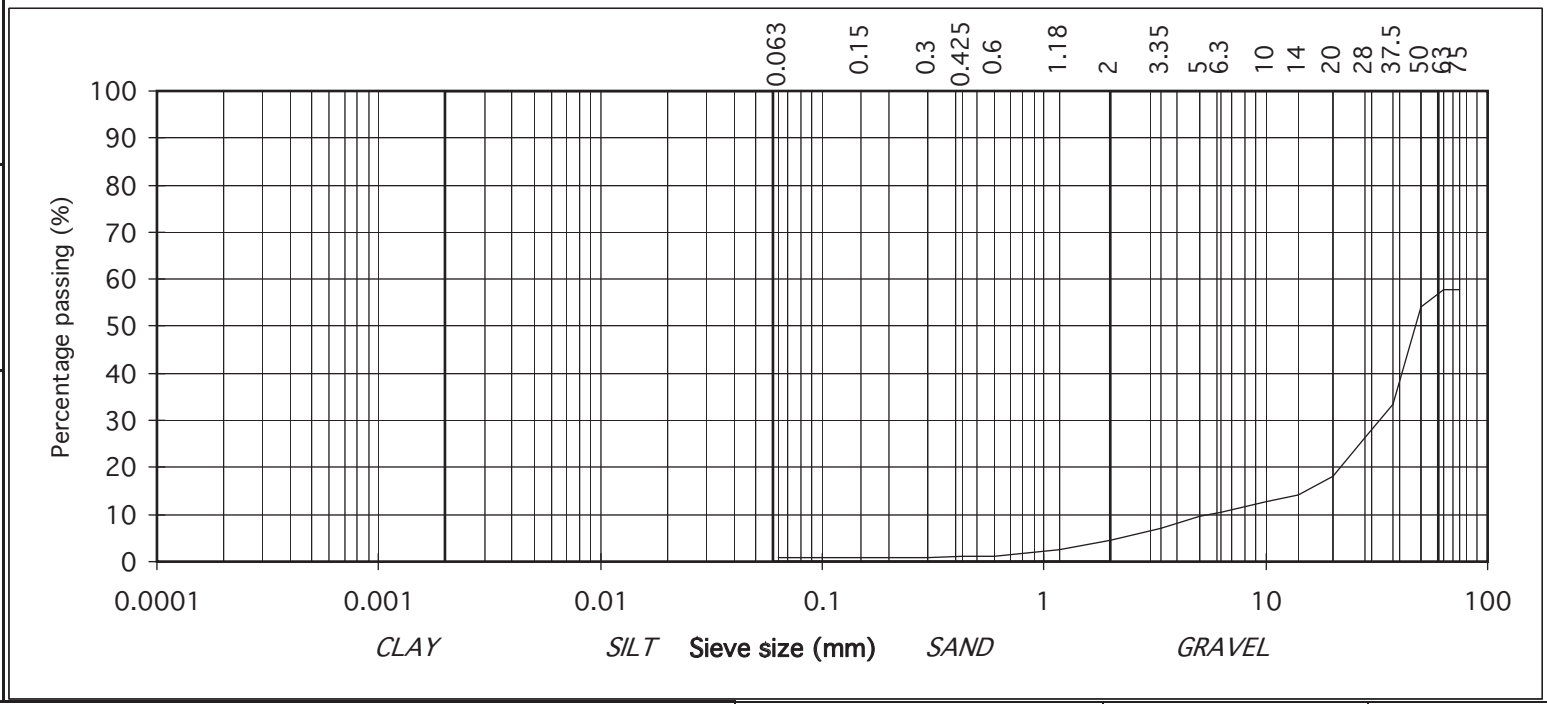
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	58	COBBLES
63	58	
50	54	GRAVEL
37.5	33	
28	26	
20	18	
14	14	
10	13	
6.3	11	
5	10	
3.35	7	
2	5	
1.18	3	SAND
0.6	1	
0.425	1	
0.3	1	
0.15	1	
0.063	1	SILT/CLAY

Contract No: 21319 Report No. R96633
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH06
Sample No. AA93633 Lab. Sample No. A18/9355
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: Dark brown/black slightly clayey/silty, slightly sandy, GRAVEL with many cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

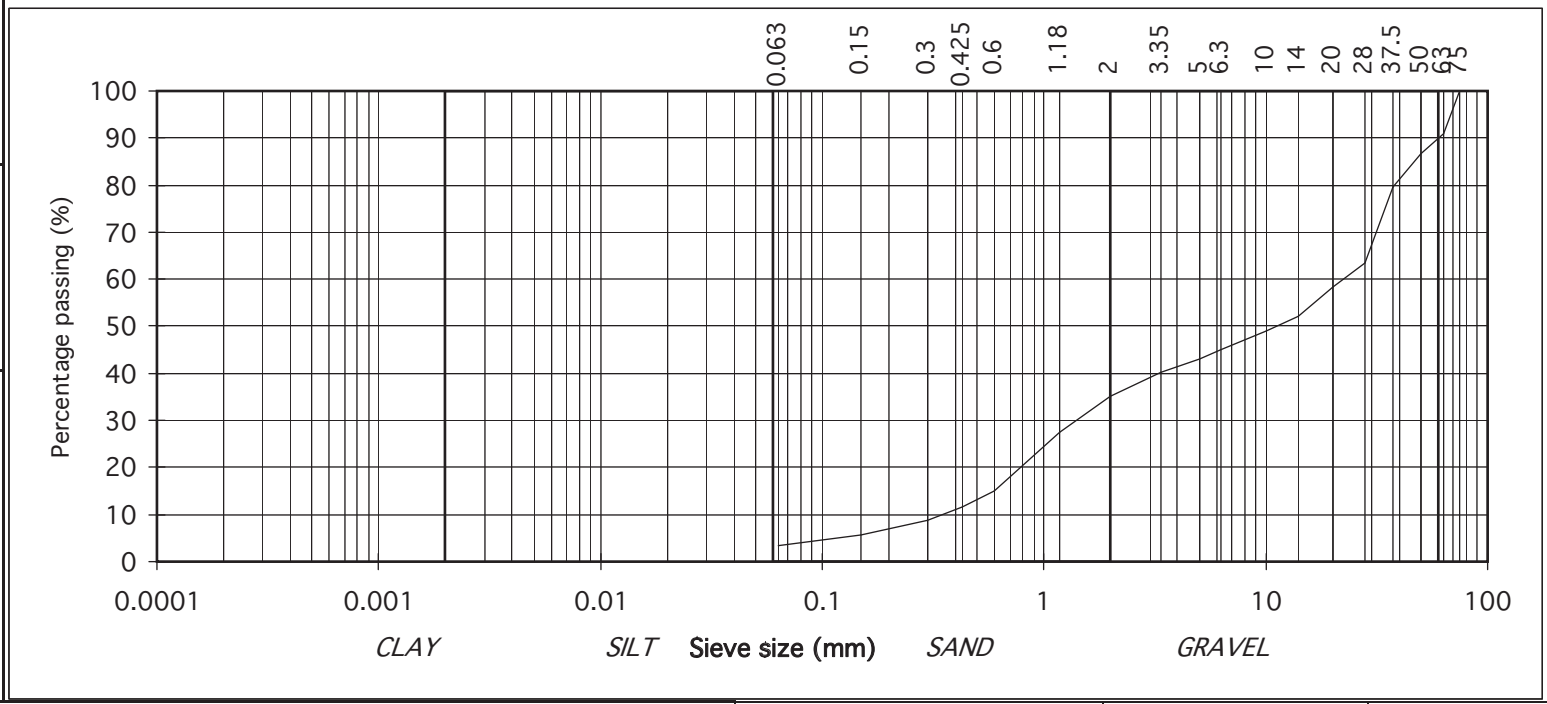
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	91	
50	87	GRAVEL
37.5	79	
28	64	
20	58	
14	52	
10	49	
6.3	45	
5	43	
3.35	40	
2	35	
1.18	28	SAND
0.6	15	
0.425	12	
0.3	9	
0.15	6	
0.063	3	SILT/CLAY

Contract No: 21319 Report No. R96634
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH06
Sample No. AA93635 Lab. Sample No. A18/9356
Sample Type: B
Depth (m) 4.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 30/11/2018
Description: Brown slightly clayey/silty, very sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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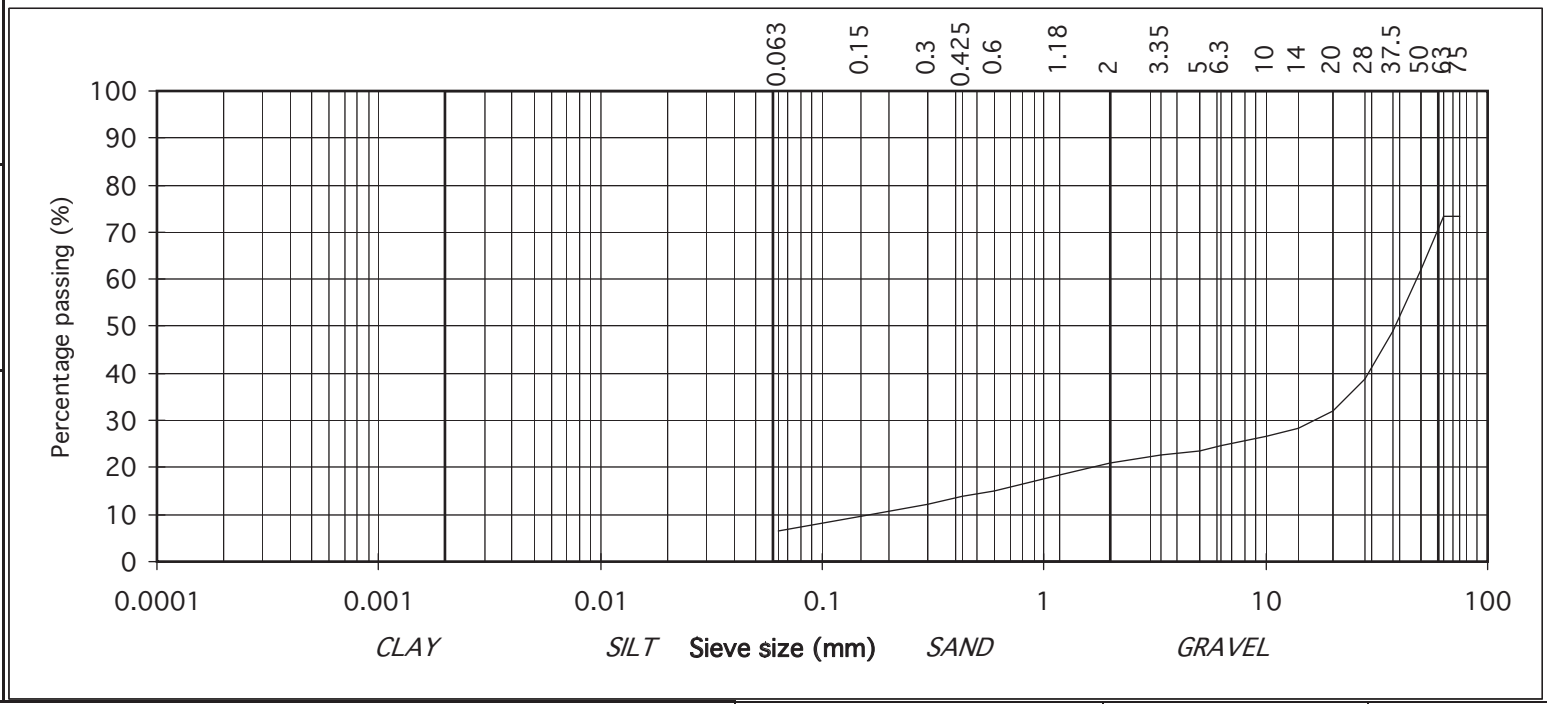
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	73	COBBLES
63	73	
50	62	GRAVEL
37.5	49	
28	39	
20	32	
14	28	
10	27	
6.3	25	
5	24	
3.35	23	
2	21	
1.18	18	SAND
0.6	15	
0.425	14	
0.3	12	
0.15	10	
0.063	7	SILT/CLAY

Contract No: 21319 Report No. R96635
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH07
Sample No. AA93645 Lab. Sample No. A18/9357
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Brown silty, sandy, GRAVEL with many cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

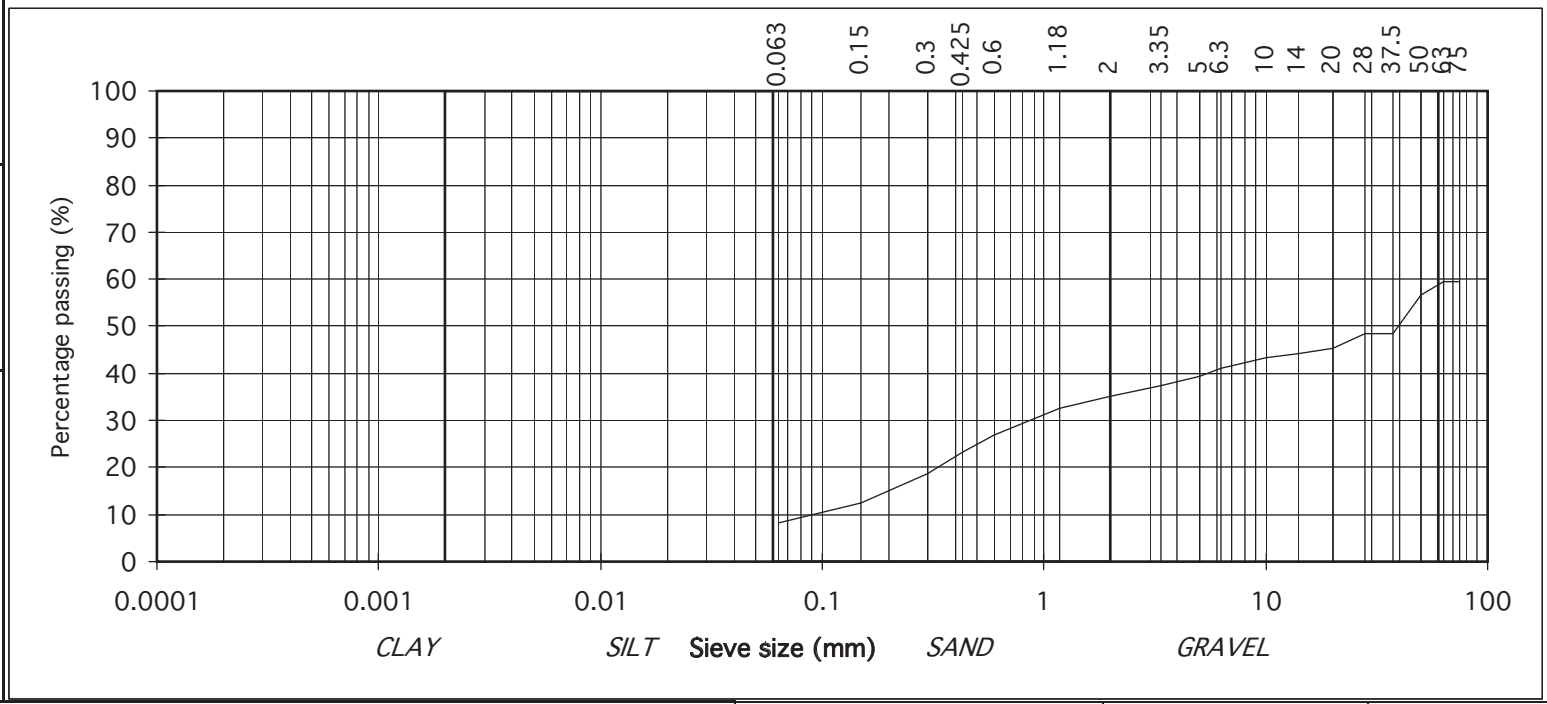
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1337

particle size	% passing	
75	60	COBBLES
63	60	
50	57	GRAVEL
37.5	48	
28	48	
20	45	
14	44	
10	43	
6.3	41	
5	39	
3.35	37	
2	35	
1.18	32	SAND
0.6	27	
0.425	23	
0.3	19	
0.15	13	
0.063	8	SILT/CLAY

Contract No: 21319 Report No. R96637
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH08
Sample No. AA93650 Lab. Sample No. A18/9354
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Grey/brown clayey/silty, very gravelly, SAND with many cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

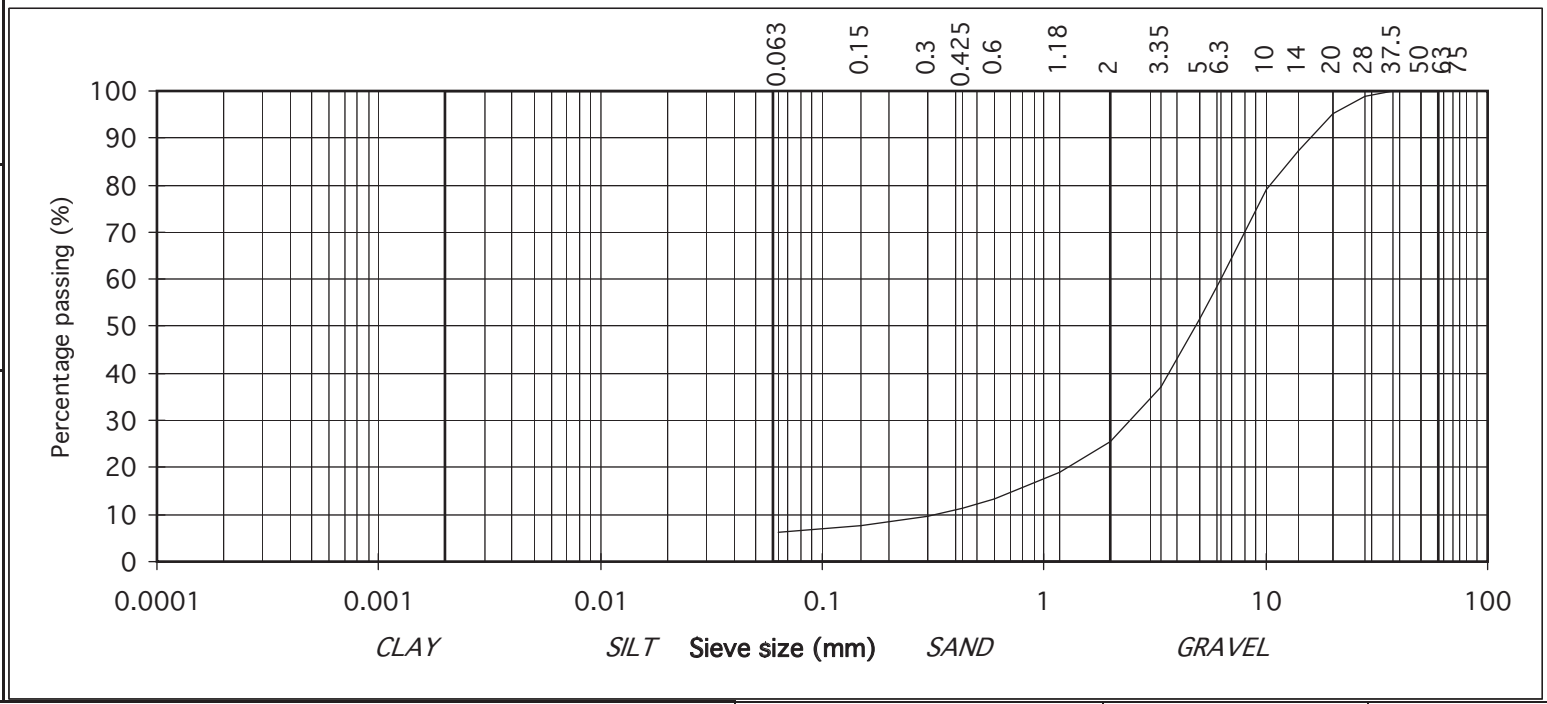
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	99	
20	95	
14	87	
10	79	
6.3	60	
5	52	
3.35	37	
2	25	
1.18	19	SAND
0.6	13	
0.425	11	
0.3	10	
0.15	8	
0.063	6	SILT/CLAY

Contract No: 21319 Report No. R96638
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH08
Sample No. AA93652 Lab. Sample No. A18/9360
Sample Type: B
Depth (m) 4.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: Black clayey/silty, sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

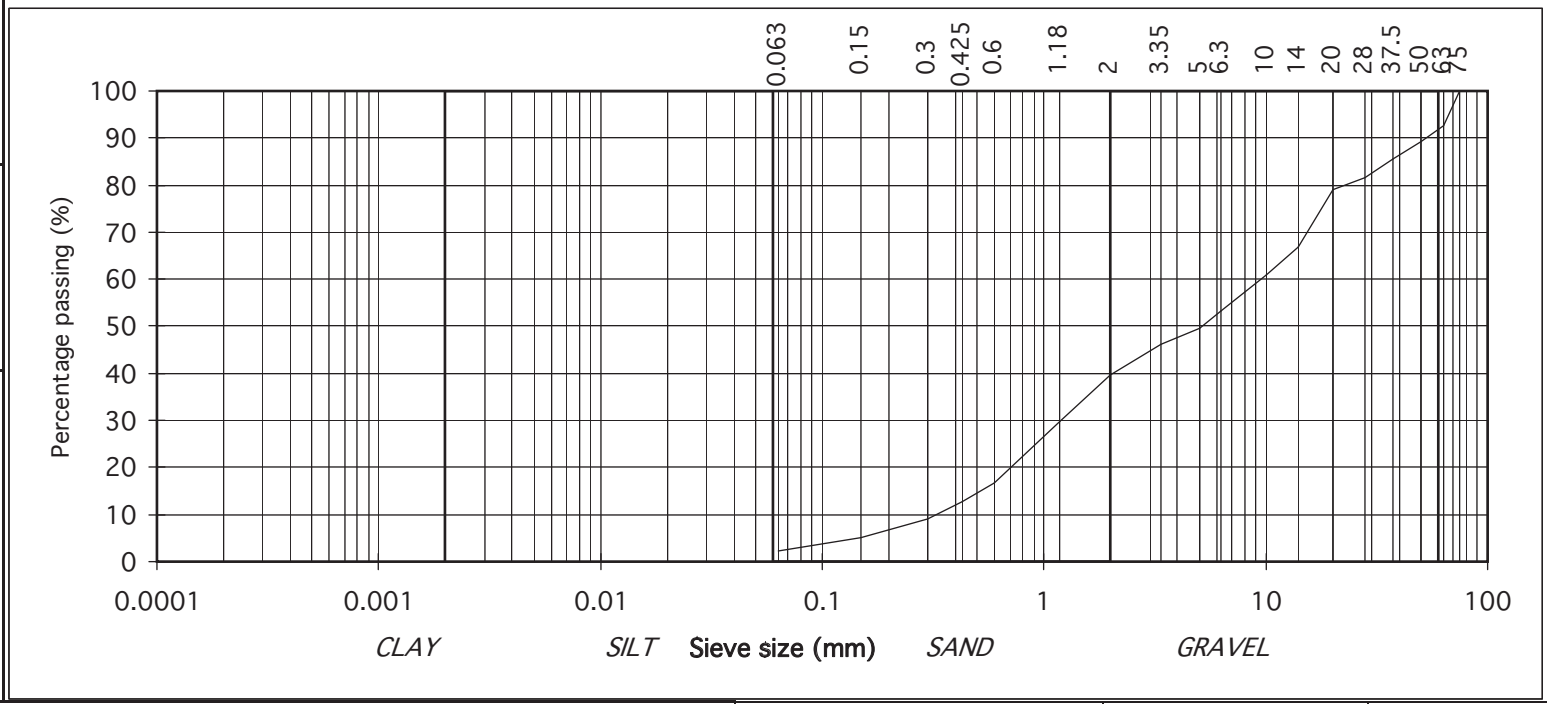
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	93	
50	89	GRAVEL
37.5	86	
28	82	
20	79	
14	67	
10	61	
6.3	53	
5	50	
3.35	46	
2	40	SAND
1.18	30	
0.6	17	
0.425	13	
0.3	9	
0.15	5	
0.063	2	SILT/CLAY

Contract No: 21319 Report No. R96636
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BH07
Sample No. AA93646 Lab. Sample No. A18/9358
Sample Type: B
Depth (m) 3.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Brown slightly clayey/silty, very sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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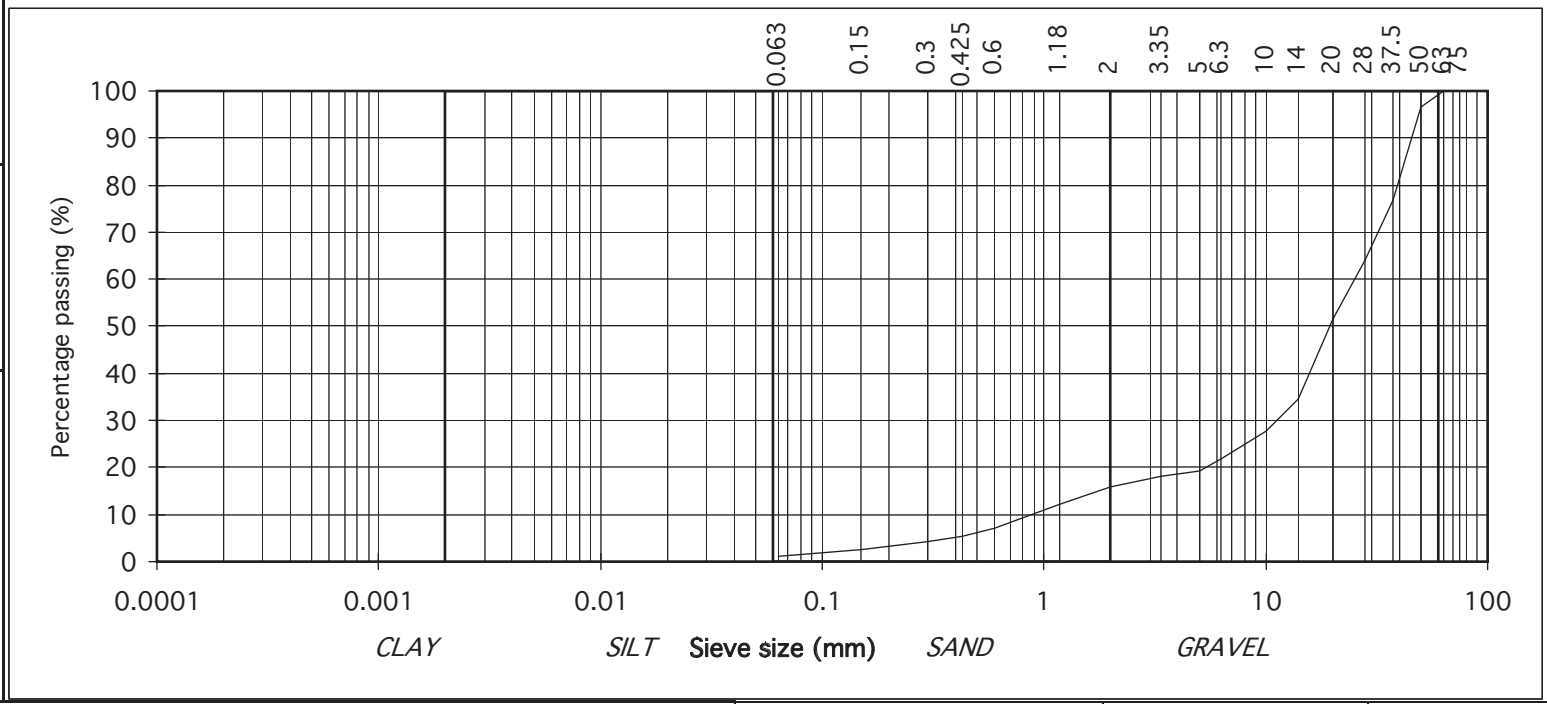
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	97	GRAVEL
37.5	77	
28	64	
20	52	
14	34	
10	28	
6.3	22	
5	19	
3.35	18	
2	16	
1.18	12	SAND
0.6	7	
0.425	5	
0.3	4	
0.15	2	
0.063	1	SILT/CLAY

Contract No: 21319 Report No. R96639
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BHRC01
Sample No. AA96684 Lab. Sample No. A18/9361
Sample Type: B
Depth (m) 3.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: Black/brown slightly clayey/silty, sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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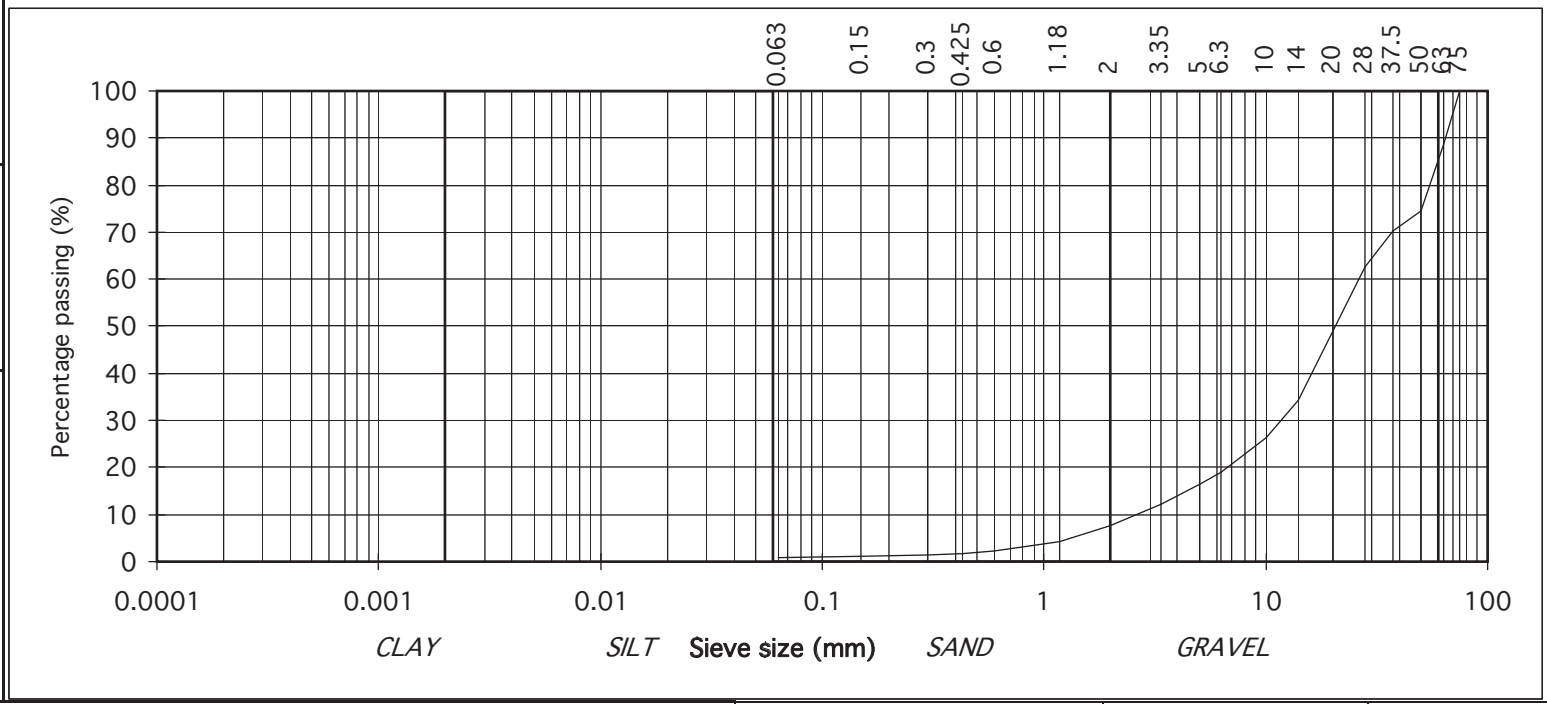
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	89	
50	75	GRAVEL
37.5	70	
28	63	
20	49	
14	34	
10	26	
6.3	19	
5	16	
3.35	12	
2	8	
1.18	4	SAND
0.6	2	
0.425	2	
0.3	1	
0.15	1	
0.063	1	SILT/CLAY

Contract No: 21319 Report No. R97005
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BHRC02
Sample No. AA96677 Lab. Sample No. A18/9362
Sample Type: B
Depth (m) 3.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 12/12/2018
Description: Grey/brown slightly clayey/silty, sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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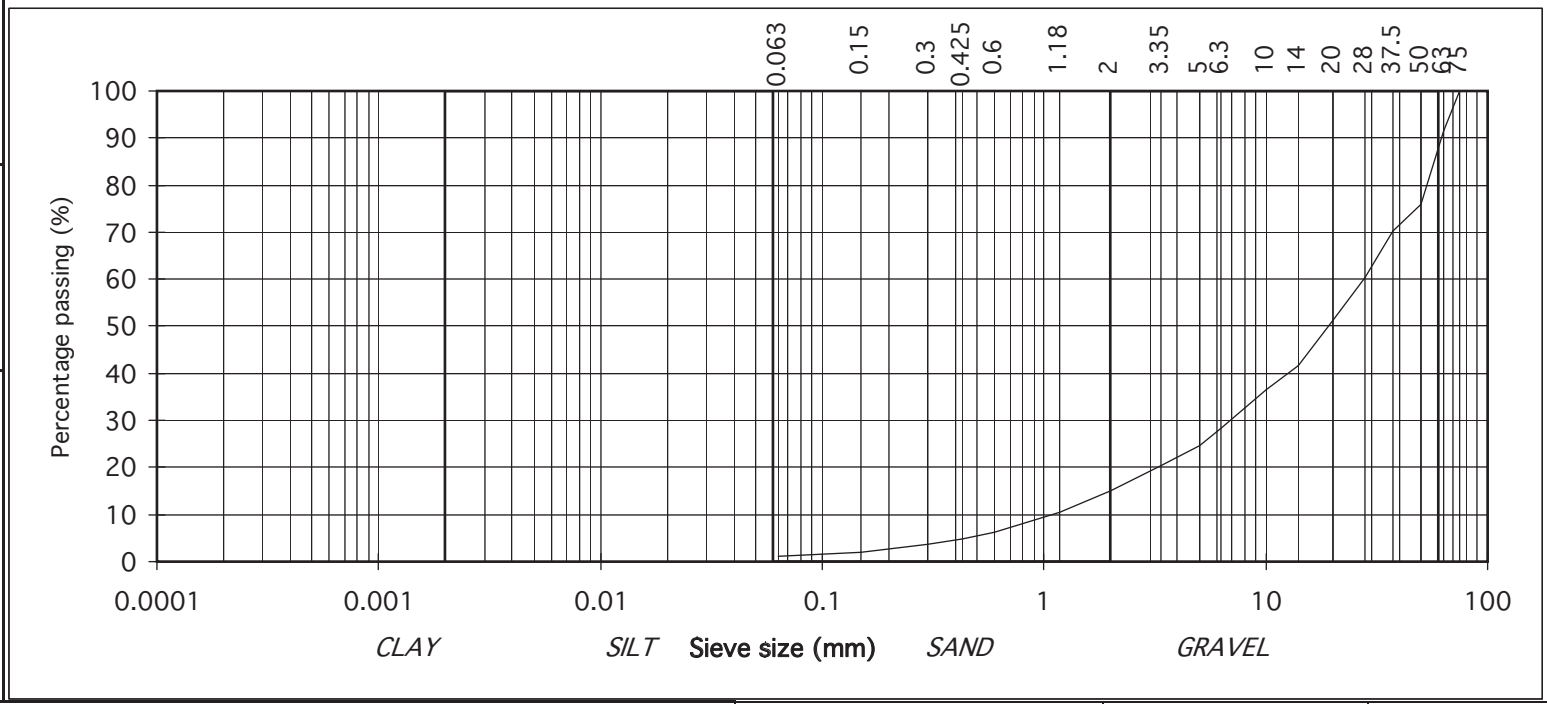
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	92	
50	76	GRAVEL
37.5	70	
28	60	
20	51	
14	42	
10	37	
6.3	28	
5	25	
3.35	20	
2	15	
1.18	10	SAND
0.6	6	
0.425	5	
0.3	4	
0.15	2	
0.063	1	SILT/CLAY

Contract No: 21319 Report No. R96640
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BHRC03
Sample No. AA96687 Lab. Sample No. A18/9363
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Black/brown slightly clayey/silty, sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

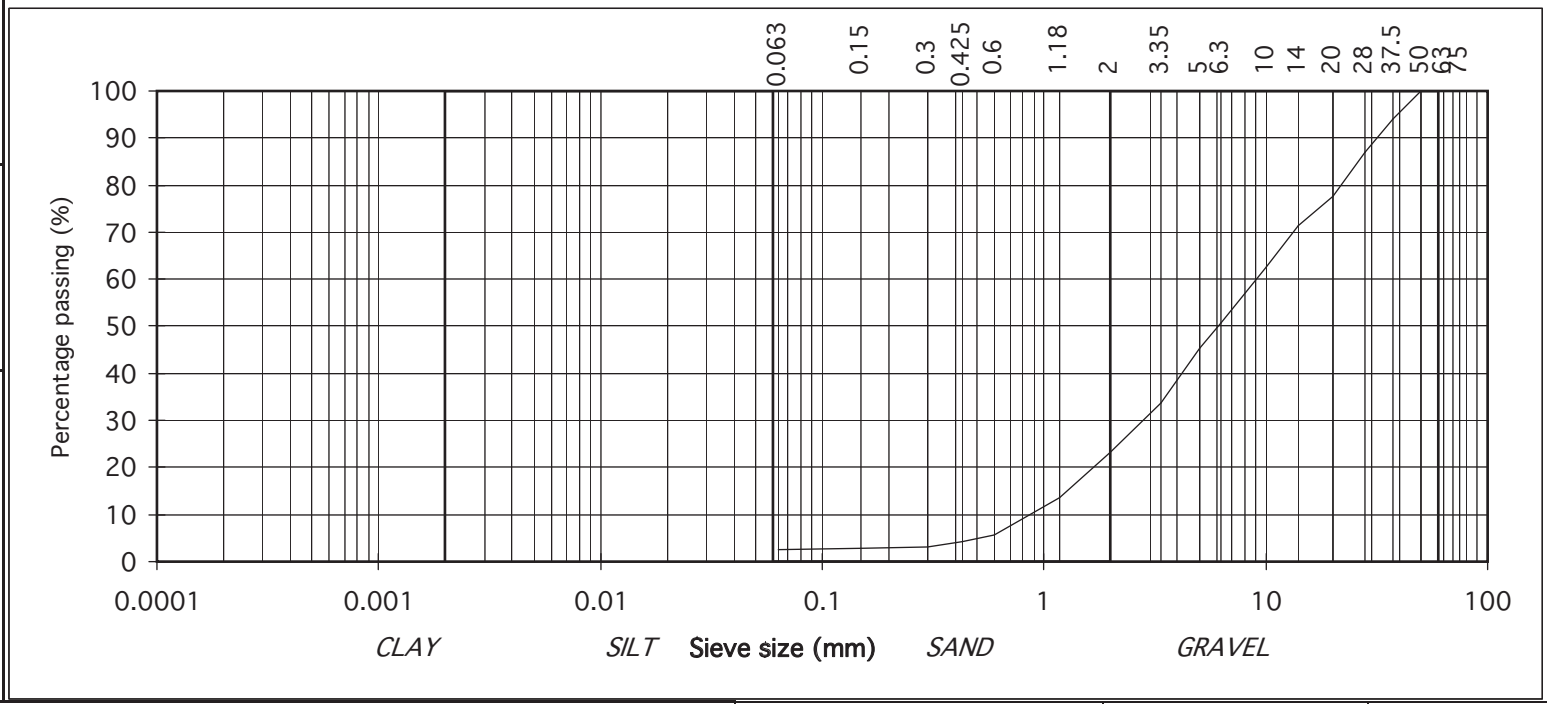
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	94	
28	87	
20	78	
14	71	
10	63	
6.3	51	
5	45	
3.35	34	
2	23	
1.18	14	SAND
0.6	6	
0.425	4	
0.3	3	
0.15	3	
0.063	3	SILT/CLAY

Contract No: 21319 Report No. R97006
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BHRC03
Sample No. AA96688 Lab. Sample No. A18/9364
Sample Type: B
Depth (m) 3.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 06/12/2018
Description: Black/brown slightly clayey/silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

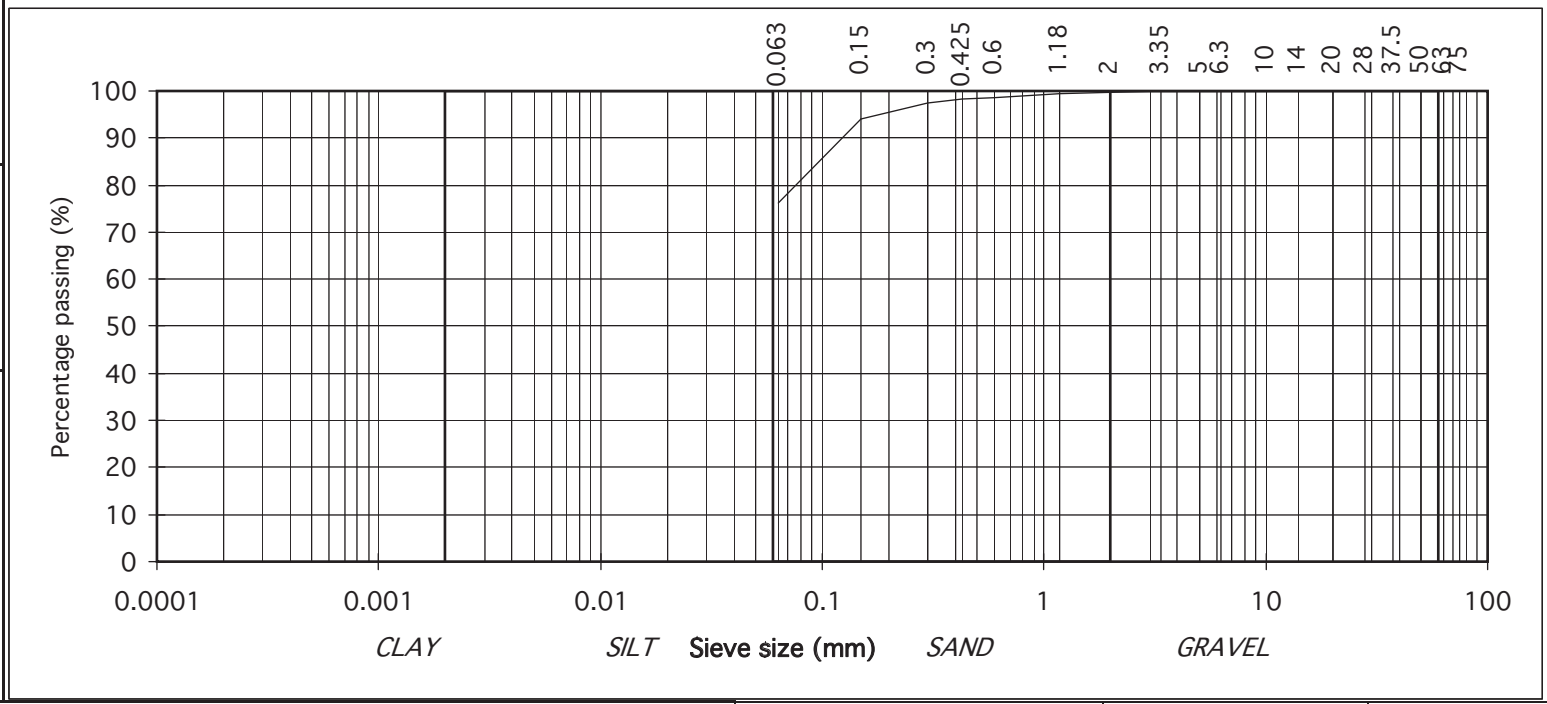
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	99	SAND
0.6	99	
0.425	98	
0.3	98	
0.15	94	
0.063	76	SILT/CLAY

Contract No: 21319 Report No. R96726
Contract: Priorsland , Carrickmines , Dublin
BH/TP : BHRC04
Sample No. AA96691 Lab. Sample No. A18/9366
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Brown slightly sandy, SILT/CLAY

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

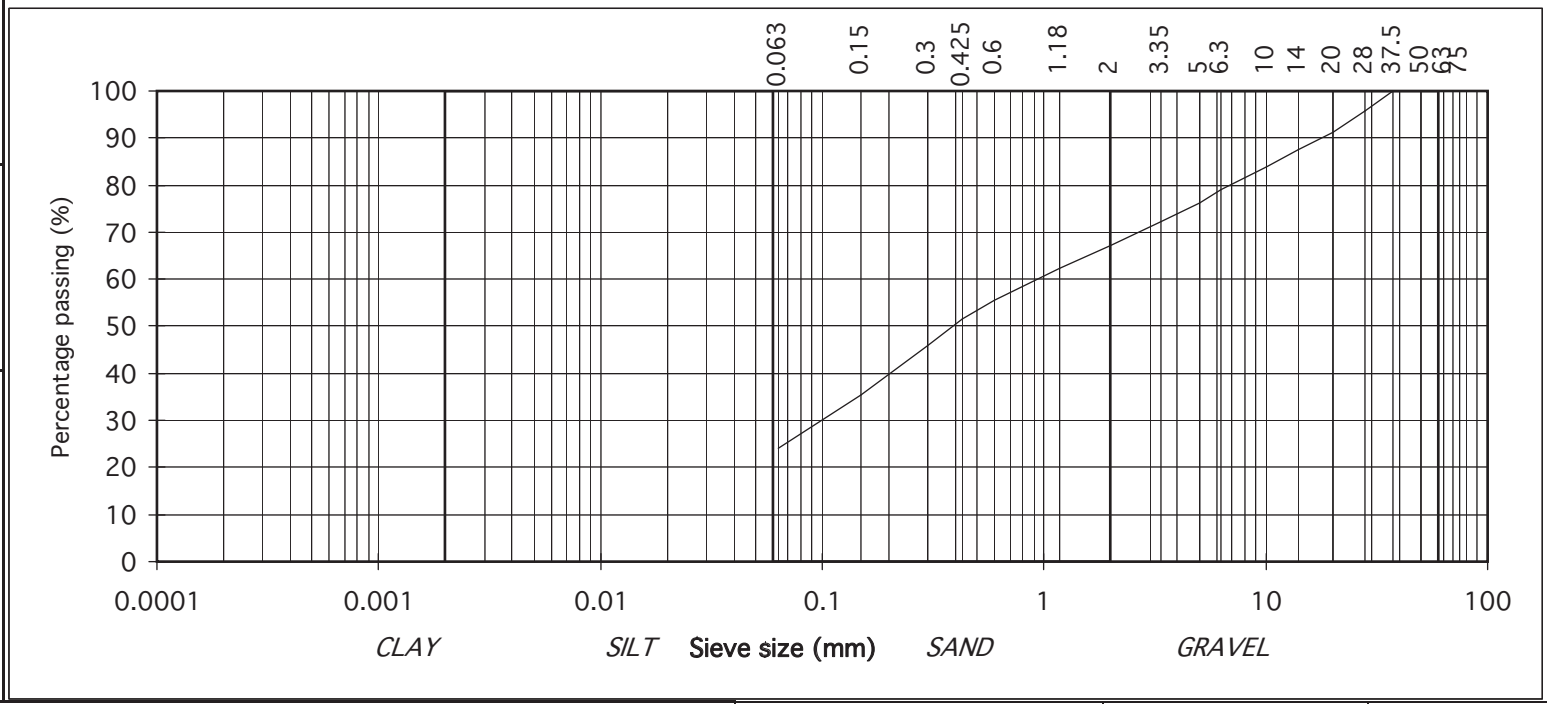
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	96	
20	91	
14	88	
10	84	
6.3	79	
5	76	
3.35	72	
2	67	
1.18	62	SAND
0.6	55	
0.425	52	
0.3	46	
0.15	35	
0.063	24	SILT/CLAY

Contract No: 21319 Report No. R96727
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP01
Sample No. AA85653 Lab. Sample No. A18/9367
Sample Type: B
Depth (m) 2.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Grey brown sandy, slightly gravelly, SILT

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

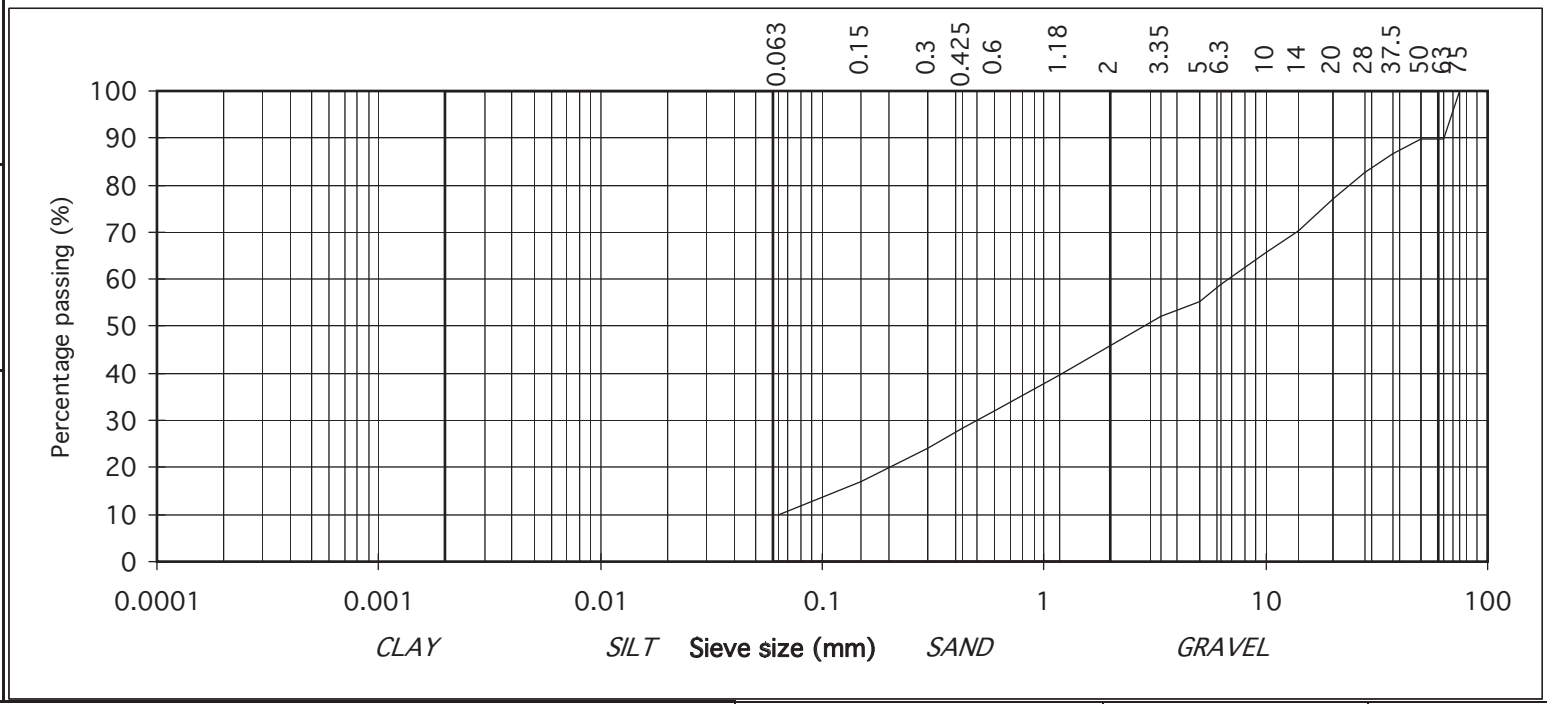
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	90	
50	90	GRAVEL
37.5	87	
28	83	
20	77	
14	70	
10	66	
6.3	59	
5	55	
3.35	52	
2	46	
1.18	40	SAND
0.6	32	
0.425	28	
0.3	24	
0.15	17	
0.063	10	SILT/CLAY

Contract No: 21319 Report No. R96549
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP02
Sample No. AA80657 Lab. Sample No. A18/9368
Sample Type: B
Depth (m) 1.70 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 16/11/2018 Date Testing started 30/11/2018
Description: Brown/grey clayey/silty, very sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

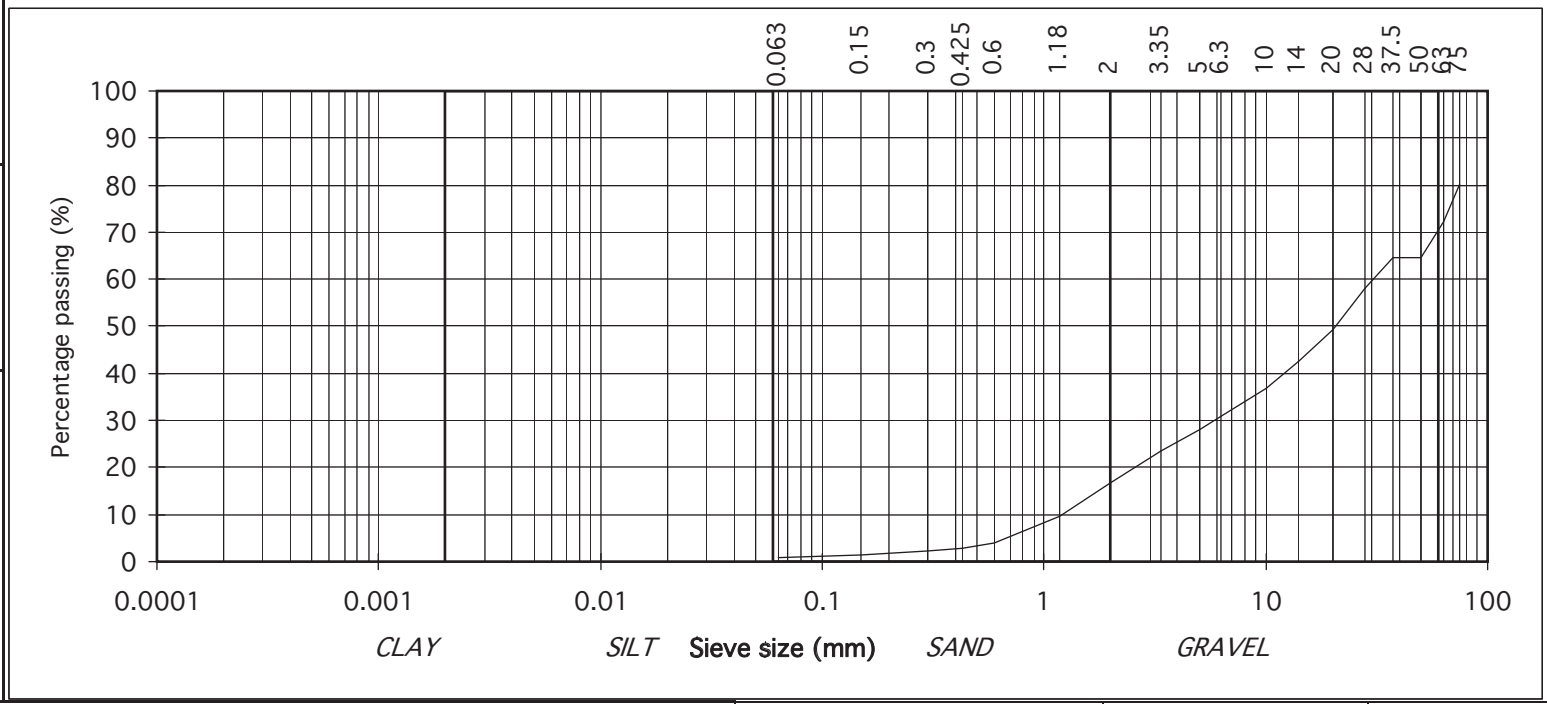
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	80	COBBLES
63	72	
50	64	GRAVEL
37.5	64	
28	58	
20	49	
14	43	
10	37	
6.3	31	
5	28	
3.35	23	
2	17	
1.18	10	SAND
0.6	4	
0.425	3	
0.3	2	
0.15	1	
0.063	1	SILT/CLAY

Contract No: 21319 Report No. R97000
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP03
Sample No. AA90659/60 Lab. Sample No. A18/9369
Sample Type: B
Depth (m) 0.90 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 12/12/2018
Description: Brown/grey slightly clayey/silty, sandy, GRAVEL with many cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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H Byrne	02/01/19	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

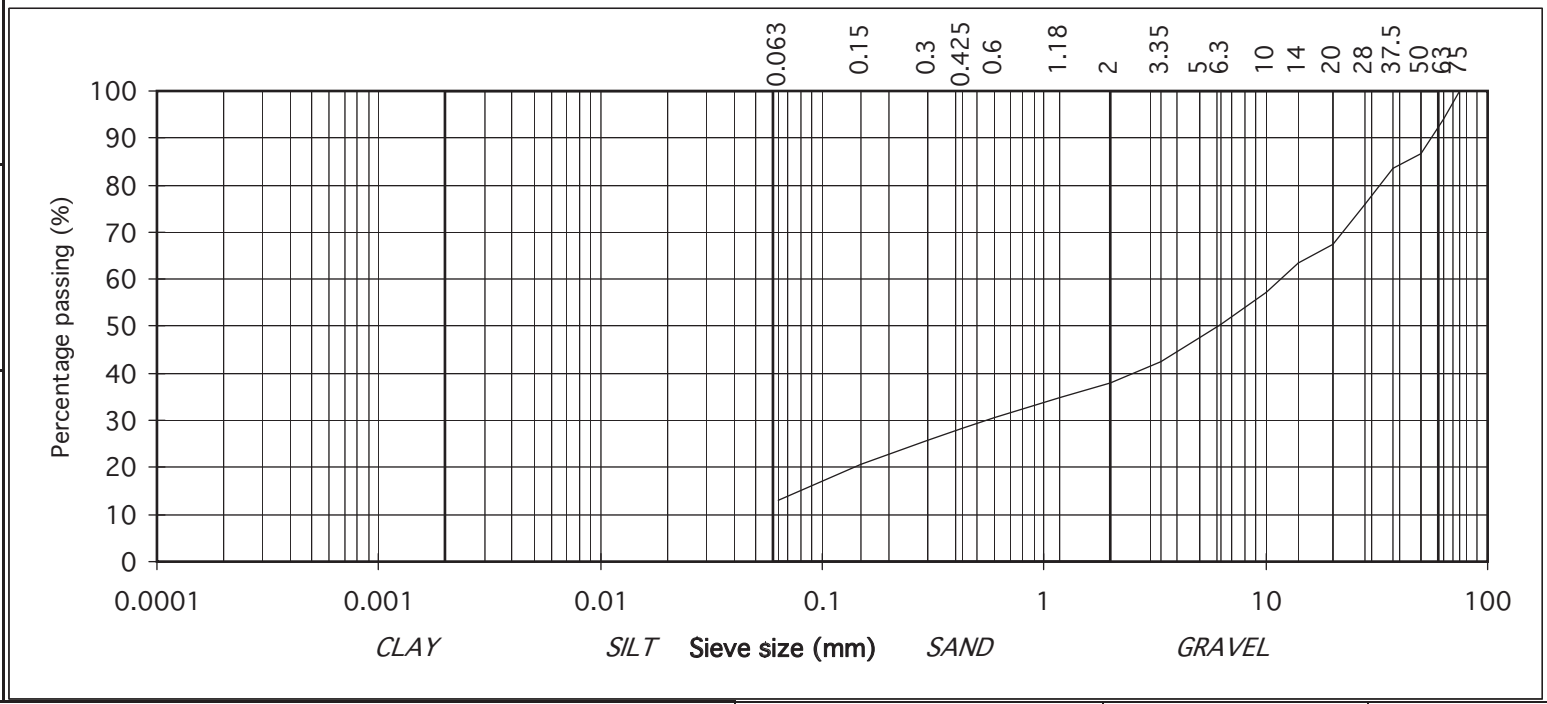
TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	94	
50	87	GRAVEL
37.5	84	
28	76	
20	67	
14	64	
10	57	
6.3	50	
5	48	
3.35	42	
2	38	
1.18	35	SAND
0.6	31	
0.425	28	
0.3	26	
0.15	21	
0.063	13	SILT/CLAY

Contract No: 21319 Report No. R97445
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP05
Sample No. AA80664 Lab. Sample No. A18/9370
Sample Type: B
Depth (m) 1.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Grey brown silty, very sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

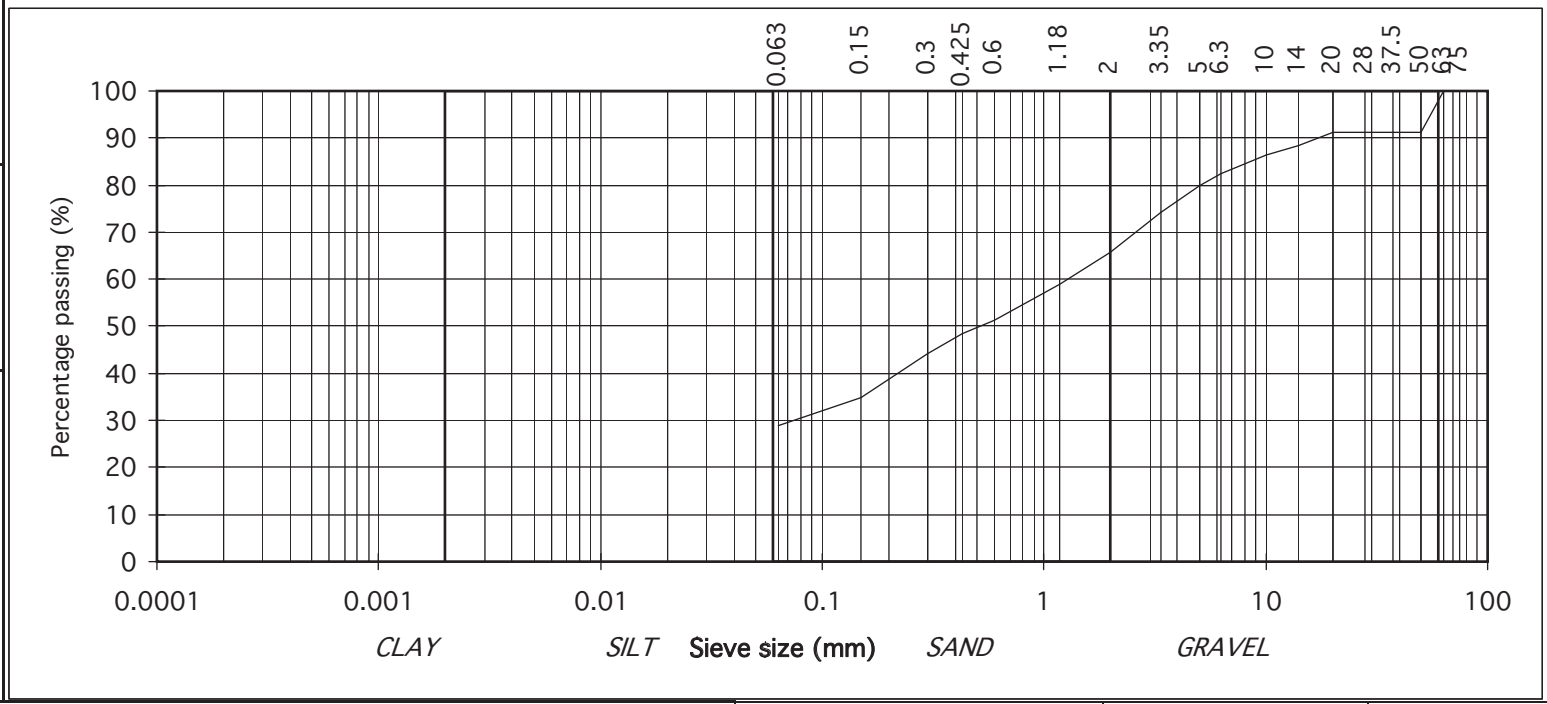
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	91	GRAVEL
37.5	91	
28	91	
20	91	
14	88	
10	86	
6.3	83	
5	80	
3.35	74	
2	66	
1.18	59	SAND
0.6	51	
0.425	48	
0.3	44	
0.15	35	
0.063	29	SILT/CLAY

Contract No: 21319 Report No. R96641
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP06
Sample No. AA80660 Lab. Sample No. A18/9371
Sample Type: B
Depth (m) 1.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 03/12/2018
Description: Light brown sandy, slightly gravelly, SILT/CLAY

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

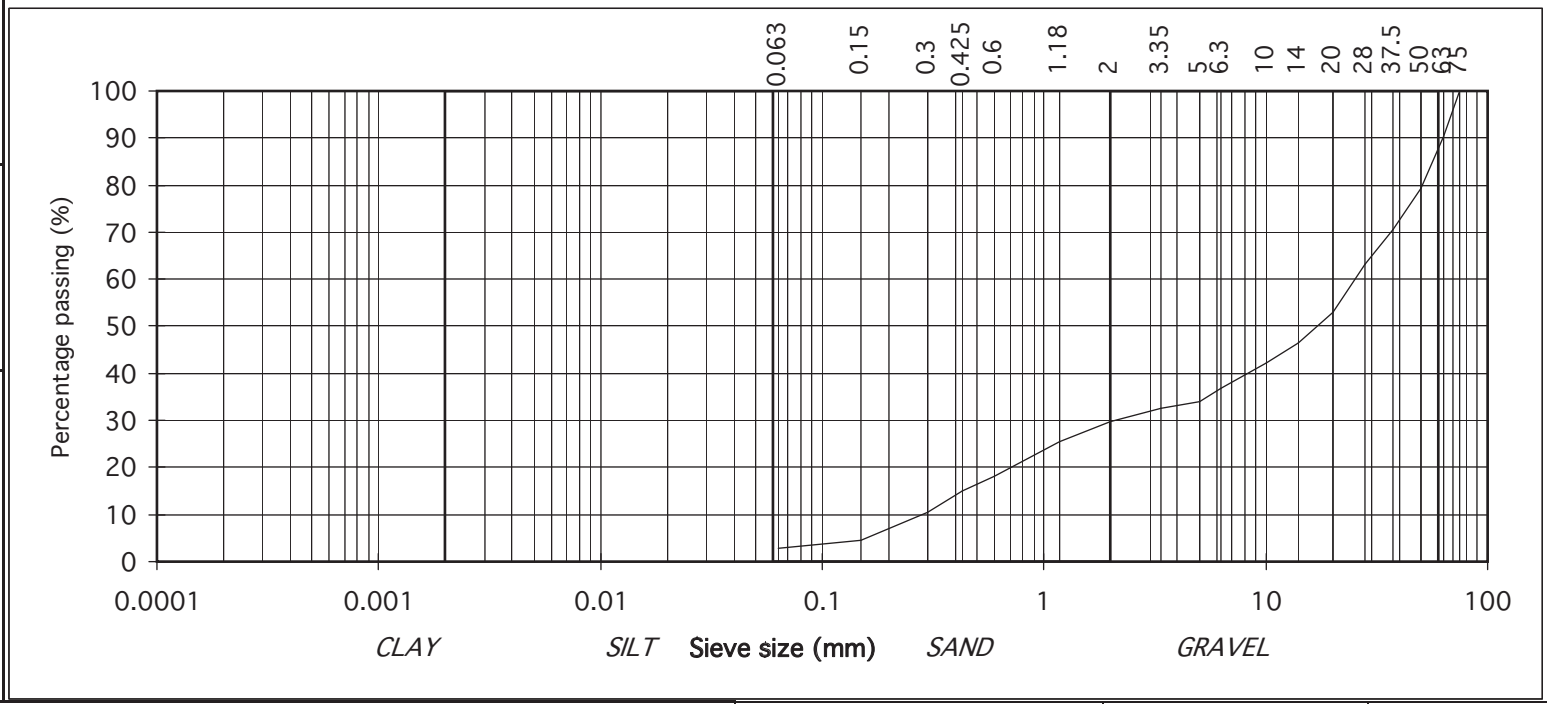
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	90	
50	79	GRAVEL
37.5	70	
28	63	
20	53	
14	46	
10	42	
6.3	37	
5	34	
3.35	33	
2	30	
1.18	26	SAND
0.6	18	
0.425	15	
0.3	10	
0.15	4	
0.063	3	SILT/CLAY

Contract No: 21319 Report No. R97446
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP07
Sample No. AA80668 Lab. Sample No. A18/9372
Sample Type: B
Depth (m) 1.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Grey brown slightly clayey/silty, very sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

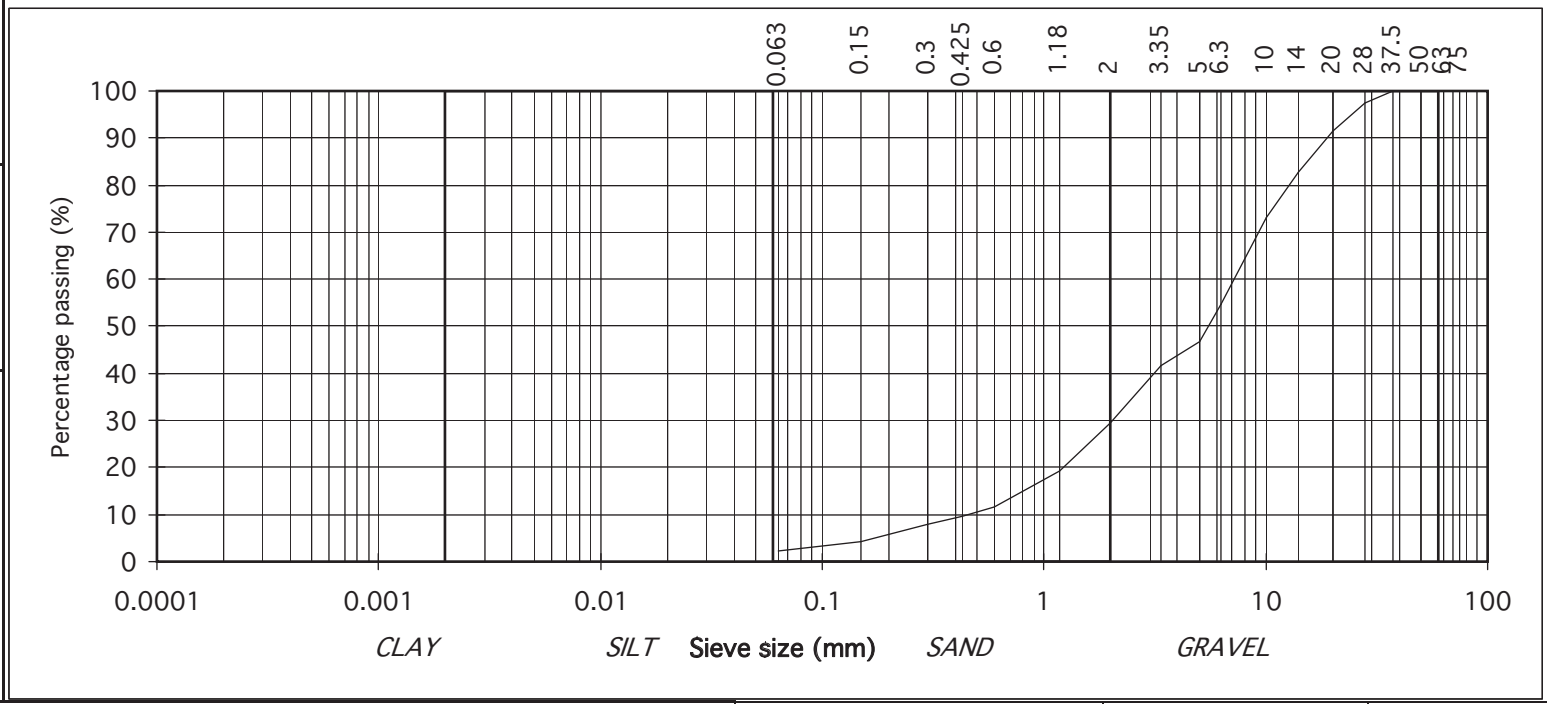
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	98	
20	92	
14	83	
10	73	
6.3	55	
5	47	
3.35	42	
2	30	
1.18	19	SAND
0.6	12	
0.425	10	
0.3	8	
0.15	4	
0.063	2	SILT/CLAY

Contract No: 21319 Report No. R97447
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP11
Sample No. AA80655 Lab. Sample No. A18/9373
Sample Type: B
Depth (m) 1.20 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Grey brown slightly clayey/silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

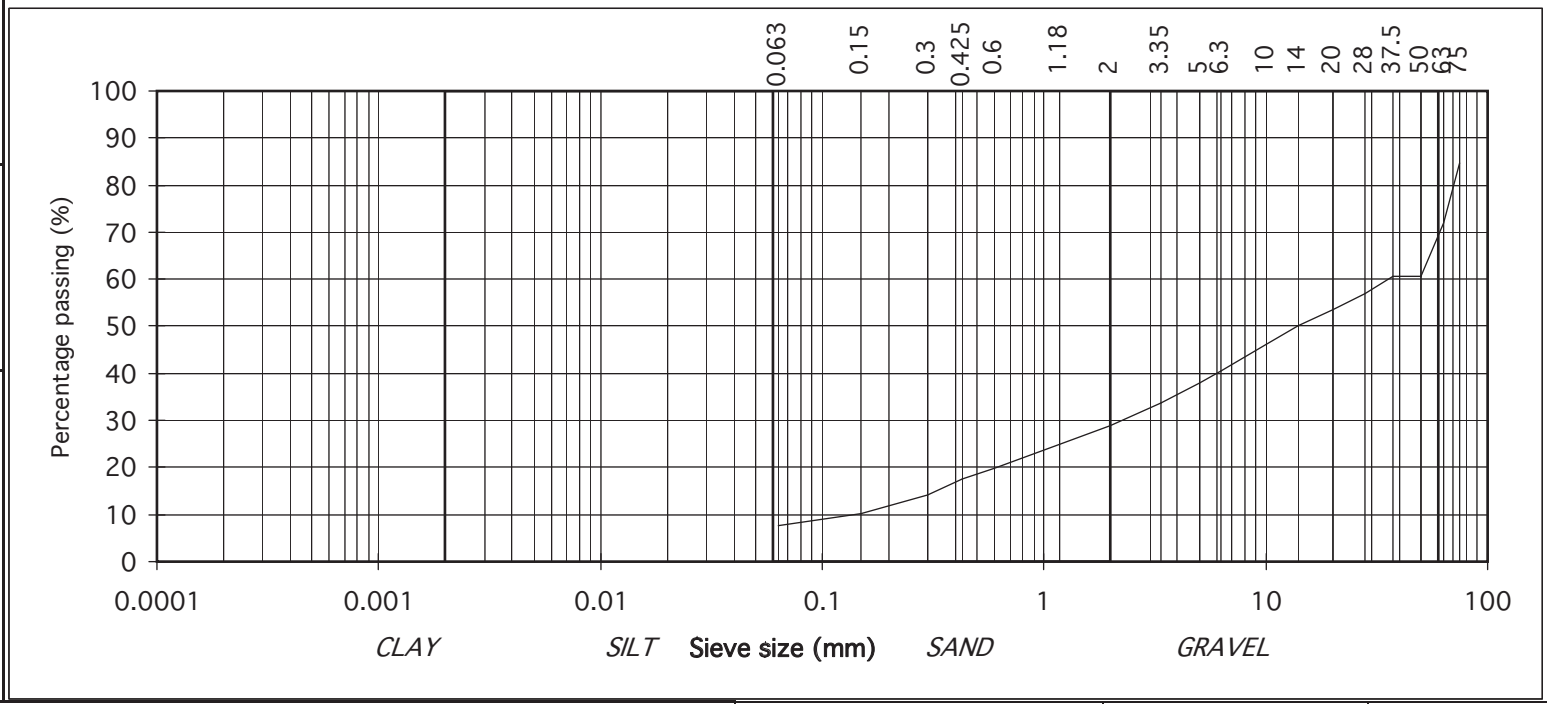
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	85	COBBLES
63	72	
50	61	GRAVEL
37.5	61	
28	57	
20	53	
14	50	
10	46	
6.3	40	
5	38	
3.35	34	
2	29	
1.18	25	SAND
0.6	20	
0.425	18	
0.3	14	
0.15	10	
0.063	8	SILT/CLAY

Contract No: 21319 Report No. R97001
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP20
Sample No. AA85674 Lab. Sample No. A18/9375
Sample Type: B
Depth (m) 1.00 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 12/12/2018
Description: Black clayey/silty, very sandy, GRAVEL with many cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

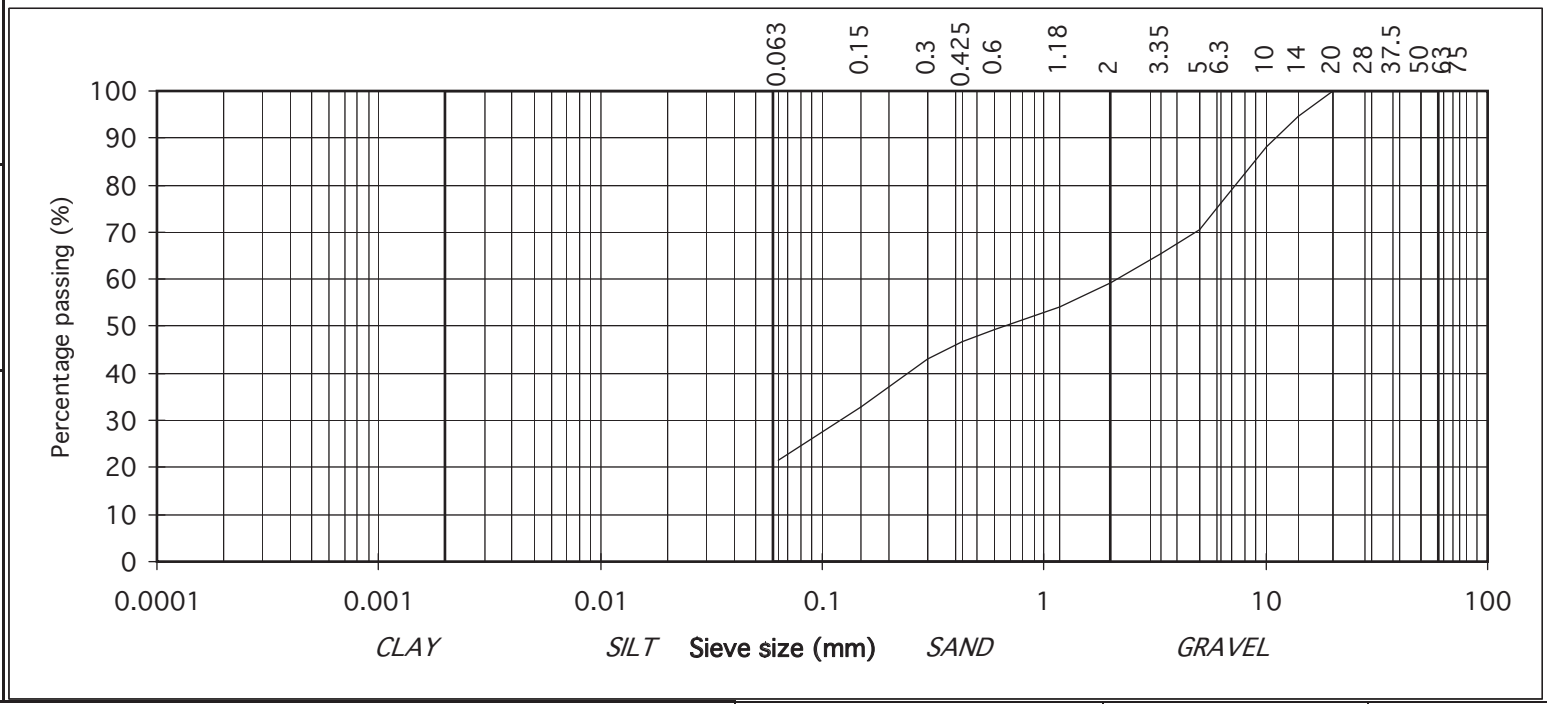
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	100	
14	94	
10	88	
6.3	76	
5	71	
3.35	65	
2	59	SAND
1.18	54	
0.6	49	
0.425	47	
0.3	43	
0.15	33	
0.063	22	SILT/CLAY

Contract No: 21319 Report No. R96642
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP24
Sample No. AA80681 Lab. Sample No. A18/9378
Sample Type: B
Depth (m) 1.70 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 05/12/2018
Description: Mottled brown sandy, gravelly, SILT/CLAY

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

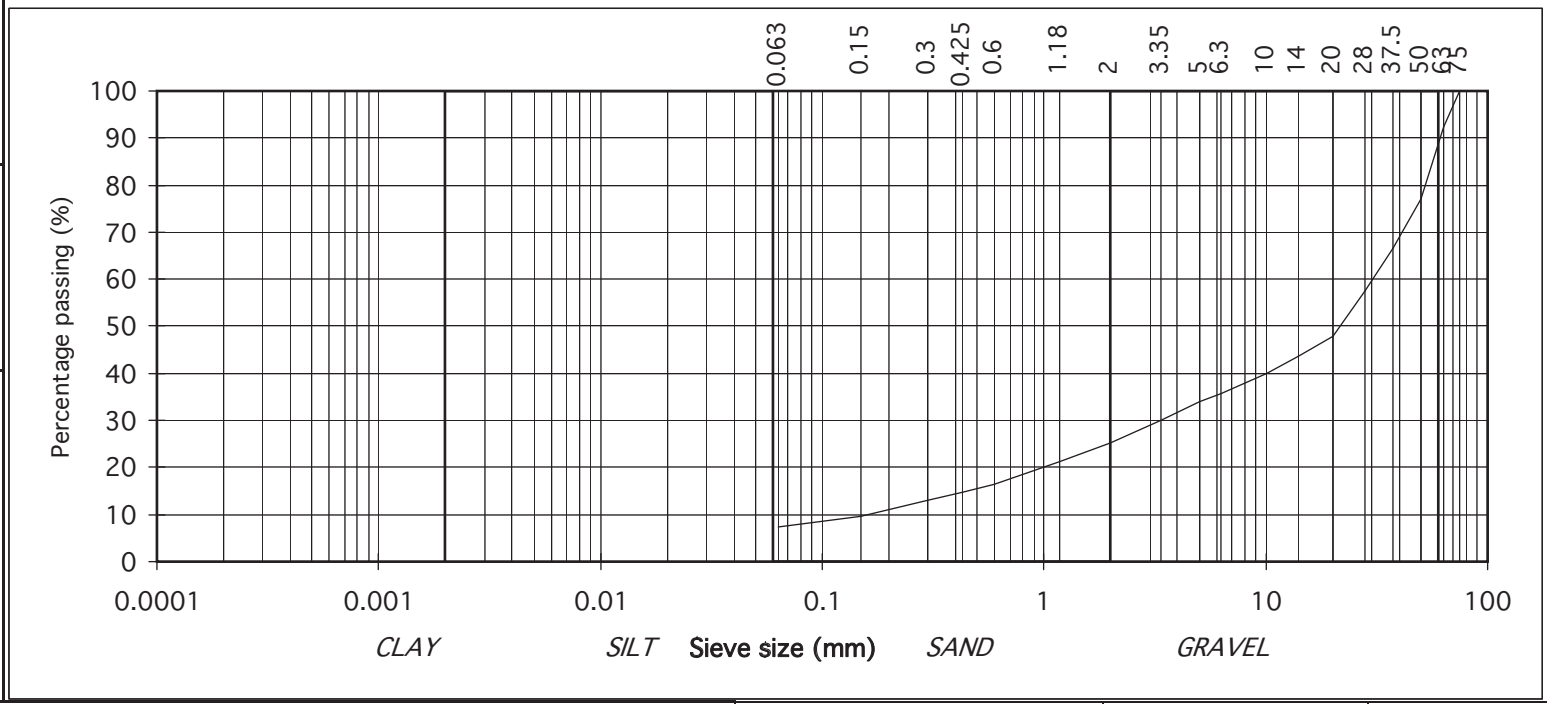
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	92	
50	77	GRAVEL
37.5	66	
28	58	
20	48	
14	44	
10	40	
6.3	36	
5	34	
3.35	30	
2	25	
1.18	21	SAND
0.6	16	
0.425	15	
0.3	13	
0.15	10	
0.063	7	SILT/CLAY

Contract No: 21319 Report No. R97002
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP29
Sample No. AA85662 Lab. Sample No. A18/9384
Sample Type: B
Depth (m) 1.40 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 06/12/2018
Description: Mottled brown silty, sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



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Approved by:	Date:	Page no:
H Byrne	02/01/19	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

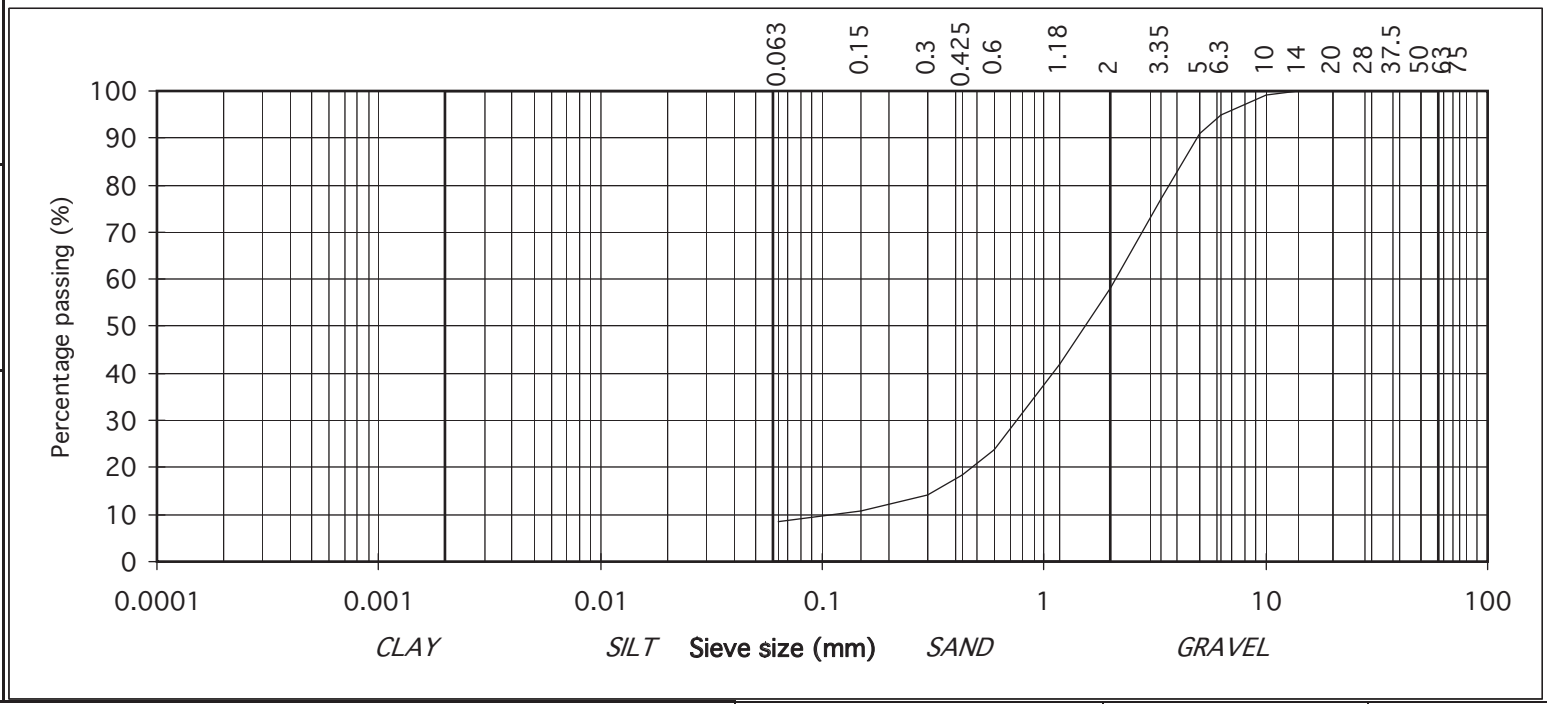
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	100	
14	100	
10	99	
6.3	95	
5	91	
3.35	77	
2	58	
1.18	42	SAND
0.6	24	
0.425	18	
0.3	14	
0.15	11	
0.063	9	SILT/CLAY

Contract No: 21319 Report No. R97003
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP31
Sample No. AA85684 Lab. Sample No. A18/9382
Sample Type: B
Depth (m) 1.40 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 12/12/2018
Description: Brown clayey/silty, very gravelly, SAND

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	02/01/19	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

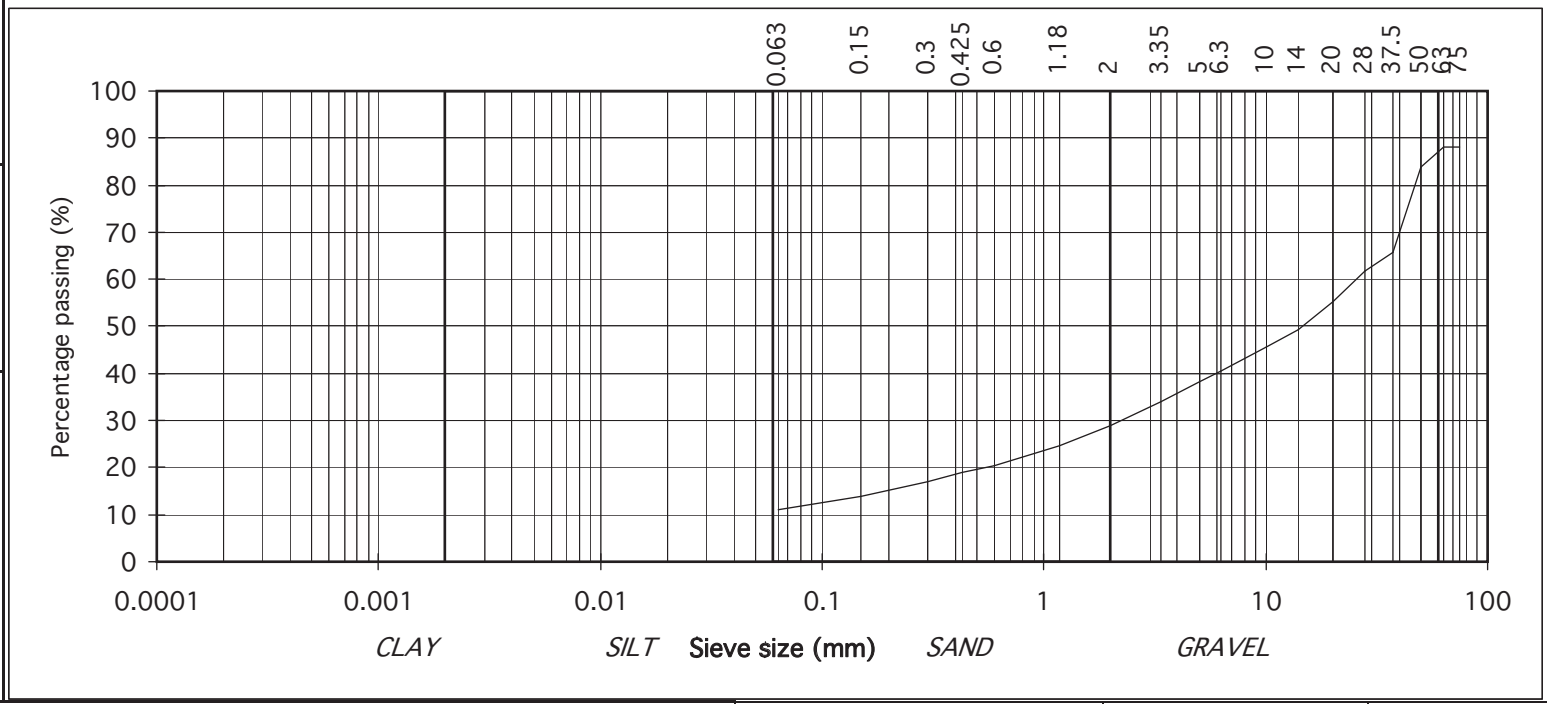
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	88	COBBLES
63	88	
50	84	GRAVEL
37.5	66	
28	62	
20	55	
14	49	
10	46	
6.3	40	
5	38	
3.35	34	
2	29	
1.18	25	SAND
0.6	21	
0.425	19	
0.3	17	
0.15	14	
0.063	11	SILT/CLAY

Contract No: 21319 Report No. R97004
Contract: Priorsland , Carrickmines , Dublin
BH/TP : TP34
Sample No. AA85686 Lab. Sample No. A18/9384
Sample Type: B
Depth (m) 1.50 Customer: Punch, Carnegie House, Library Road, Dun Laoghaire, Co Dublin
Date Received 30/11/2018 Date Testing started 12/12/2018
Description: Brown clayey/silty, sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 Sample size did not meet the requirements of BS1377



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	02/01/19	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

Contract: Priorsland Carrickmines | Contract No. 21319

Location: TP3 @ 0.9m | Sample No. 80659

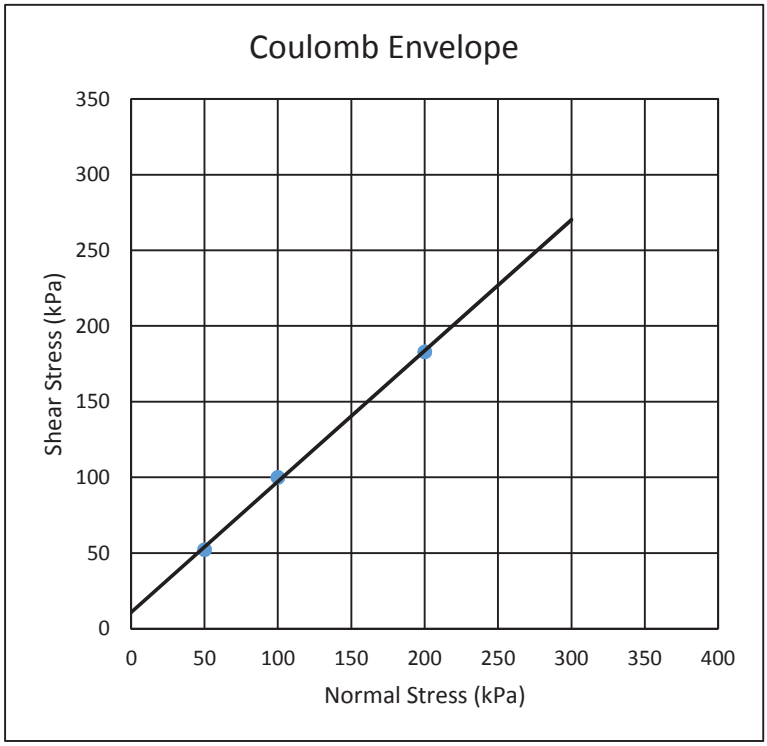
Report No. R97943 | Customer: Punch

Sample Received: | Testing started: 02/01/19

Method of Preparation: <2mm material compacted into box in 3 layers

Description: Brown slightly gravelly clayey SAND (Natural MC 19%)

	Specimen		
	1	2	3
Normal Stress (kPa)	50	100	200
Length/Width (mm)	60 x 60	60 x 60	60 x 60
Height (mm)	23	23	25
Initial Moisture Content (%)	26	26	26
Initial Bulk Density (Mg/m^3)	1.99	1.99	2.02
Initial Dry Density (Mg/m^3)	1.58	1.58	1.60
Particle Density (Mg/m^3) (Assumed)	2.65	2.65	2.65
Maximum Shear Stress (kPa)	52.225	99.95	182.854
Horizontal displacement at failure (mm)	4.985	5.129	5.622
Rate Horizontal displacement (mm/min)	0.05	0.05	0.05
Condition (Dry (D) / Submerged (S))	S	S	S

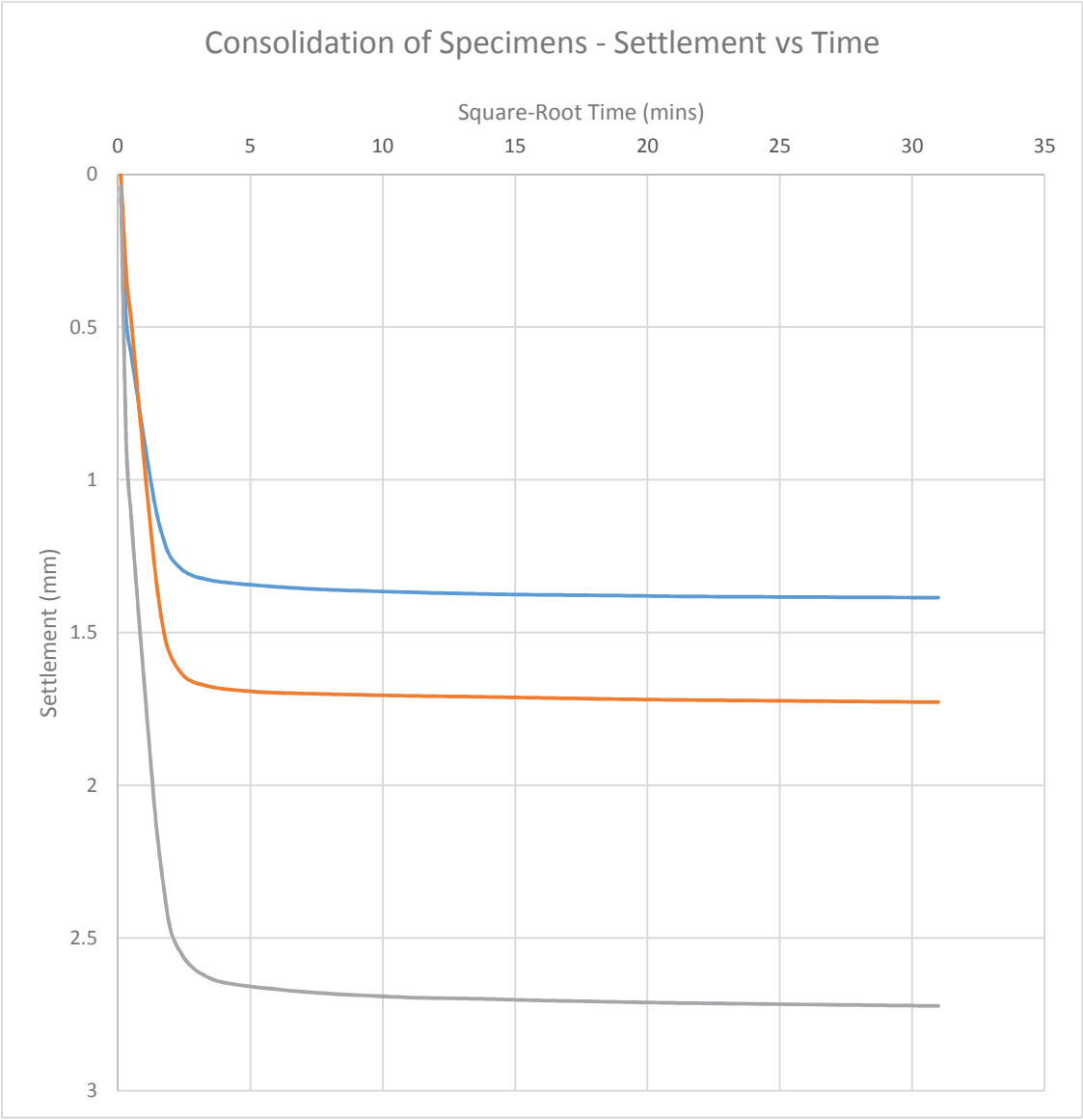


c' (kPa)	10
ϕ' (degrees)	41

Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

Contract:	Priorsland Carrickmines	Contract No.	21319
Location:	TP3 @ 0.9m	Sample No.	80659



Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

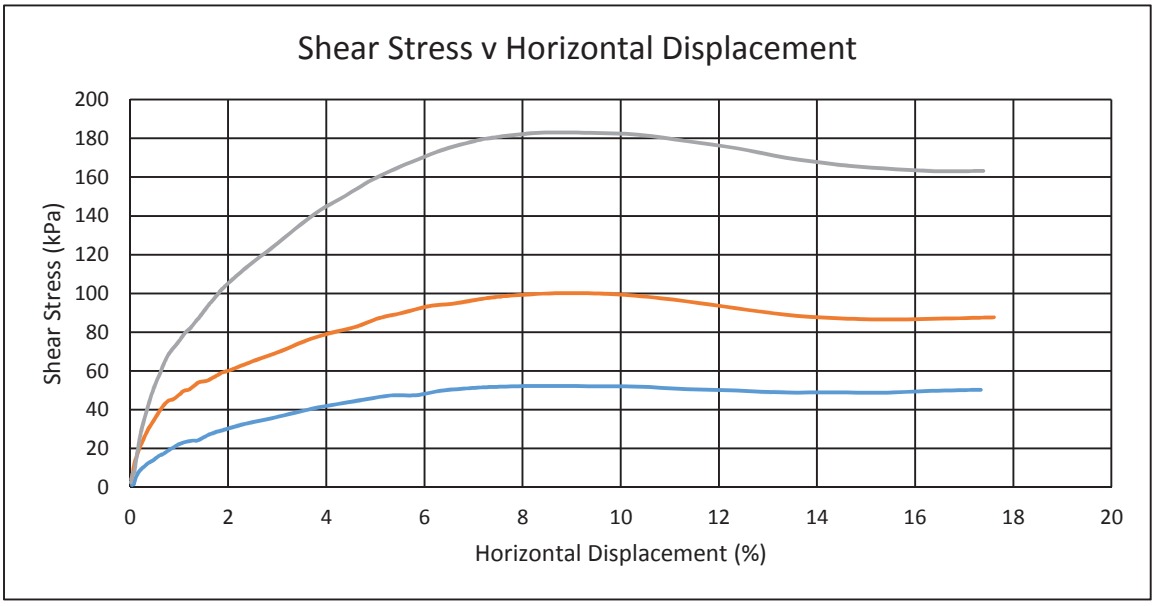
Contract: Priorsland Carrickmines

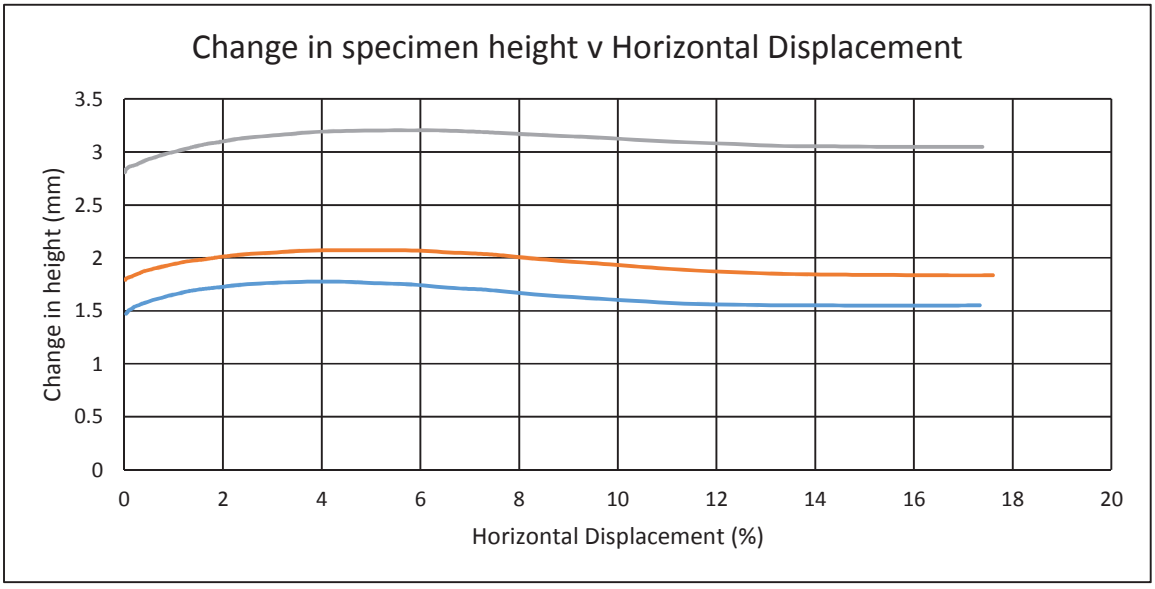
Contract No. 21319

Location: TP3 @ 0.9m

Sample No. 80659

Report No. R97943





Results relate to the specimen tested. Approved signatories ☐ J Barrett (Quality Manager) ☐ H Byrne (Laboratory Manager)	Approved by	Date	Page 3 of 3
		23/01/19	

Determination of Shear Strength by Direct Shear

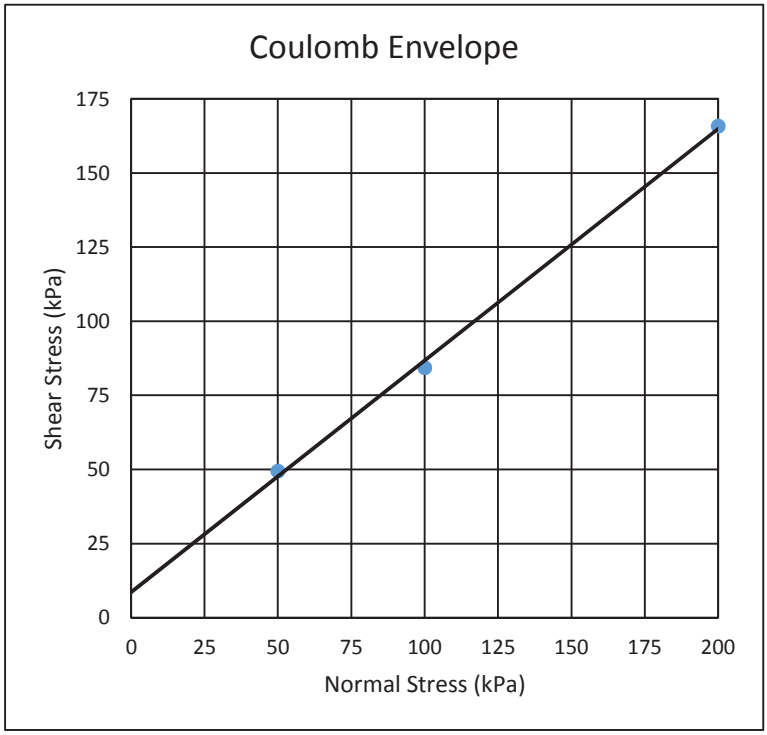
Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

Contract:	Priorsland Carrickmines	Contract No.	21319
Location:	TP7 @ 1.0m	Sample No.	80668
Report No.	R97944	Customer:	Punch
Sample Received:		Testing started:	09/01/19

Method of Preparation: <2mm material compacted into box in 3 layers

Description: Brown slightly gravelly clayey SAND (Natural MC 19%)

	Specimen		
	1	2	3
Normal Stress (kPa)	50	100	200
Length/Width (mm)	60 x 60	60 x 60	60 x 60
Height (mm)	25	25	25
Initial Moisture Content (%)	28	28	28
Initial Bulk Density (Mg/m^3)	2.00	2.00	2.01
Initial Dry Density (Mg/m^3)	1.57	1.57	1.57
Particle Density (Mg/m^3) (Assumed)	2.65	2.65	2.65
Maximum Shear Stress (kPa)	49.417	84.216	165.776
Horizontal displacement at failure (mm)	7.525	8.034	6.771
Rate Horizontal displacement (mm/min)	0.05	0.05	0.05
Condition (Dry (D) / Submerged (S))	S	S	S

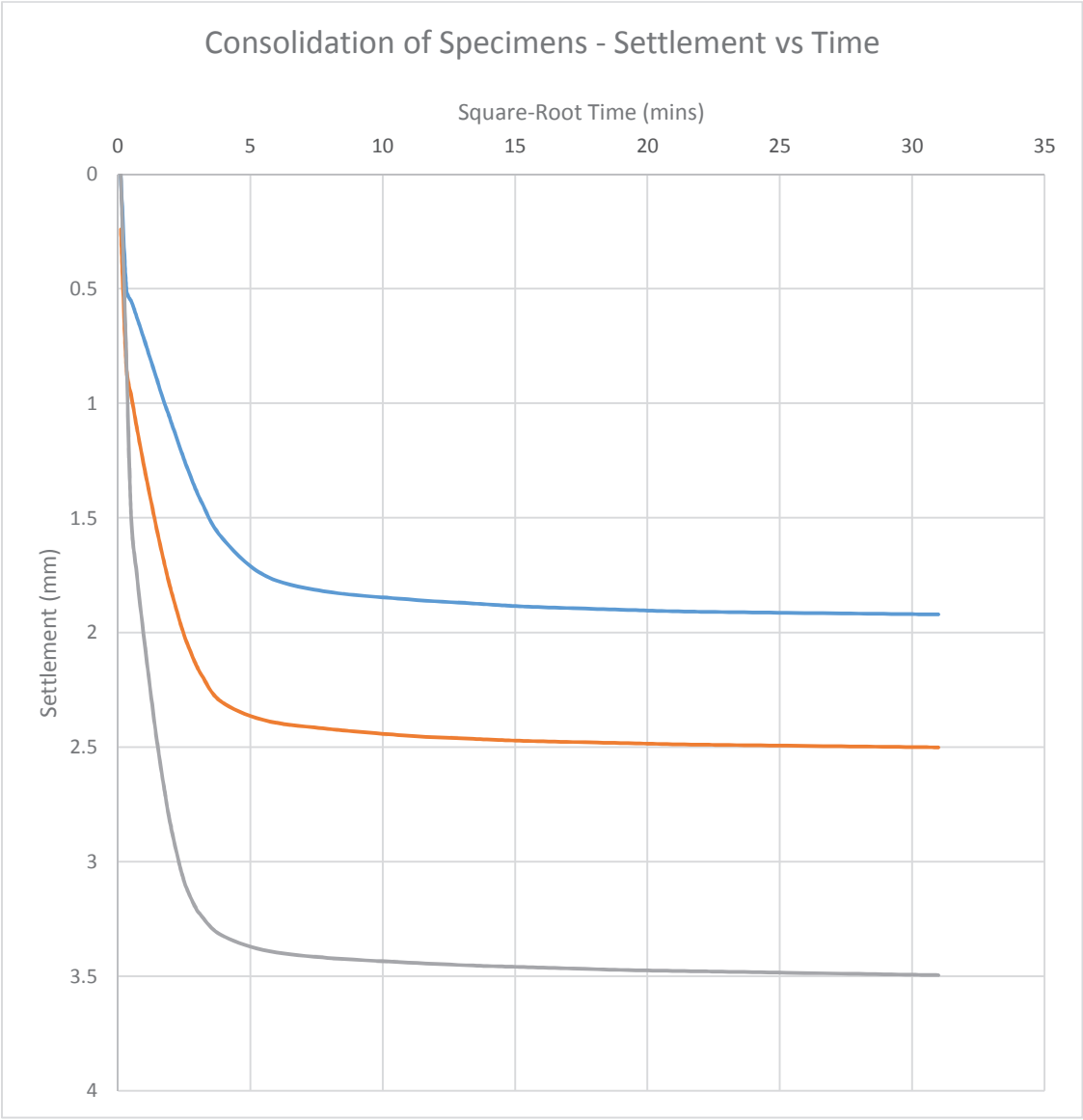


c' (kPa)	7
ϕ' (degrees)	38

Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

Contract:	Priorsland Carrickmines	Contract No.	21319
Location:	TP7 @ 1.0m	Sample No.	80668



Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

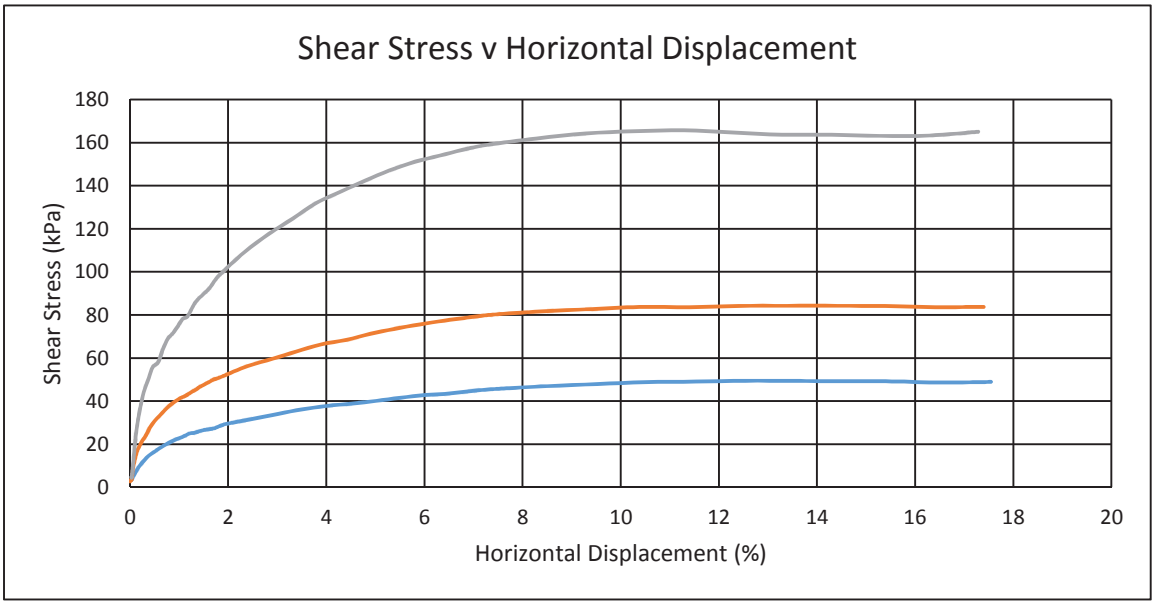
Contract: Priorsland Carrickmines

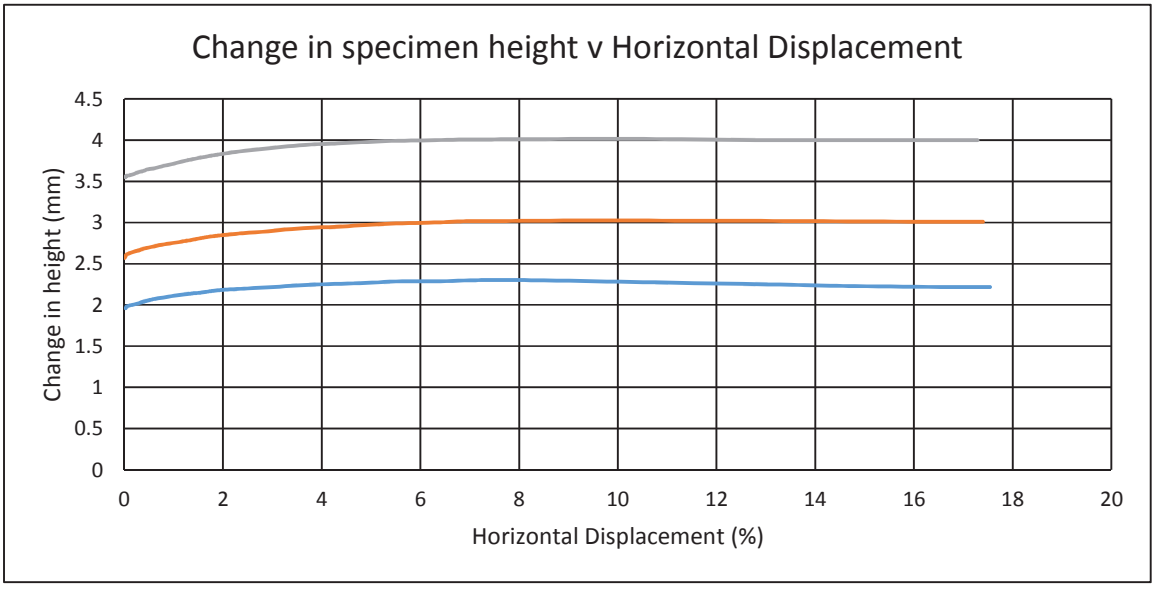
Contract No. 21319

Location: TP7 @ 1.0m

Sample No. 80668

Report No. R97944





Results relate to the specimen tested. Approved signatories ☐ J Barrett (Quality Manager) ☐ H Byrne (Laboratory Manager)	Approved by	Date	Page 3 of 3
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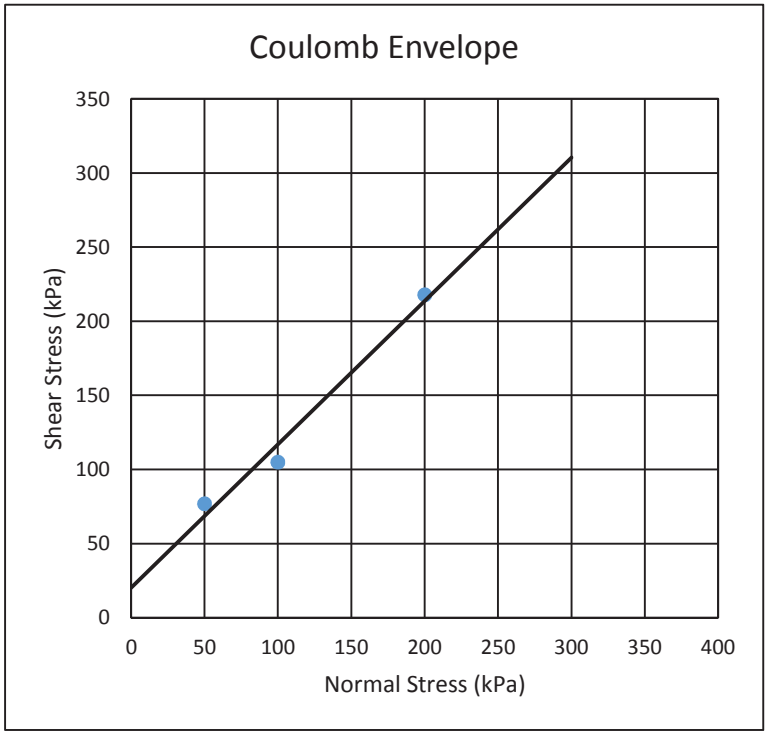
Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

Contract: Priorsland Carrickmines
Contract No. 21319
Location: TP11 @ 1.2m
Sample No. 80655
Report No. R97026
Customer: Punch
Sample Received:
Testing started: 17/12/18
Method of Preparation: <2mm material tamped into box in 3 layers
Description: Brown silty clayey sandy GRAVEL (Natural MC 14%)

	Specimen		
	1	2	3
Normal Stress (kPa)	50	100	200
Length/Width (mm)	60 x 60	60 x 60	60 x 60
Height (mm)	26	23	25
Initial Moisture Content (%)	22	22	22
Initial Bulk Density (Mg/m^3)	1.96	1.96	1.96
Initial Dry Density (Mg/m^3)	1.61	1.61	1.61
Particle Density (Mg/m^3) (Assumed)	2.65	2.65	2.65
Maximum Shear Stress (kPa)	76.659	104.847	217.707
Horizontal displacement at failure (mm)	4.923	4.384	4.867
Rate Horizontal displacement (mm/min)	0.5	0.5	0.5
Condition (Dry (D) / Submerged (S))	S	S	S



c' (kPa)	19
ϕ' (degrees)	44

Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

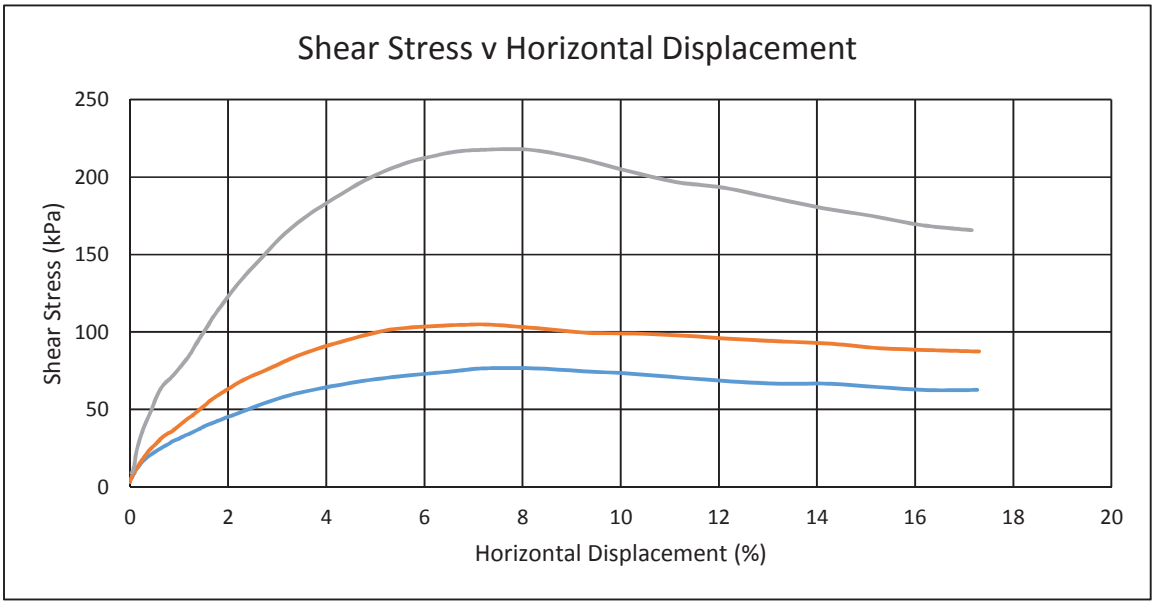
Contract: Priorsland Carrickmines

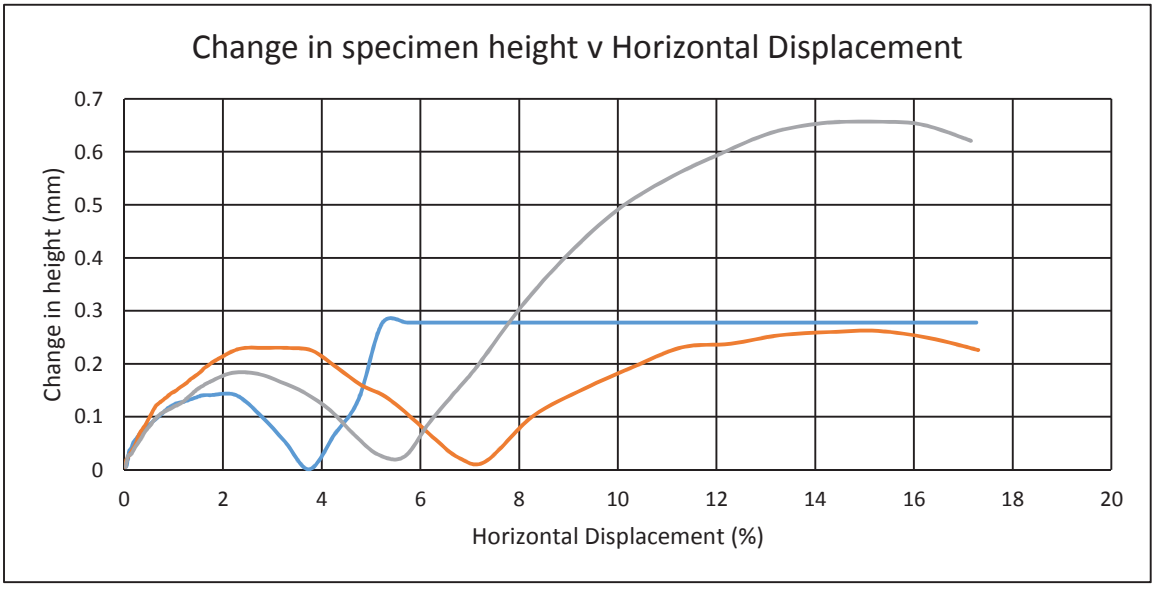
Contract No. 21319

Location: TP11 @ 1.2m

Sample No. 80655

Report No. R97026





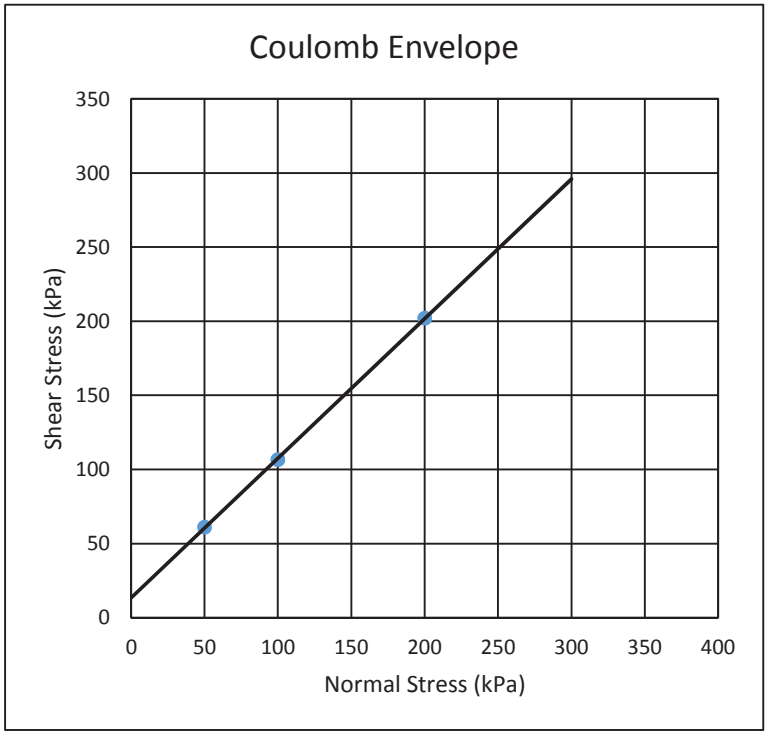
Results relate to the specimen tested. Approved signatories ☐ J Barrett (Quality Manager) ☐ H Byrne (Laboratory Manager)	Approved by	Date 20/12/18

Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

Contract: Priorsland Carrickmines
Contract No. 21319
Location: TP16 @ 1.5m
Sample No. 80670
Report No. R97027
Customer: Punch
Sample Received:
Testing started: 18/12/18
Method of Preparation: <2mm material tamped into box in 3 layers
Description: Brown silty clayey sandy GRAVEL (Natural MC 15%)

	Specimen		
	1	2	3
Normal Stress (kPa)	50	100	200
Length/Width (mm)	60 x 60	60 x 60	60 x 60
Height (mm)	23	23	23
Initial Moisture Content (%)	23	23	23
Initial Bulk Density (Mg/m^3)	1.99	1.98	1.97
Initial Dry Density (Mg/m^3)	1.61	1.60	1.60
Particle Density (Mg/m^3) (Assumed)	2.65	2.65	2.65
Maximum Shear Stress (kPa)	61.074	106.637	202.055
Horizontal displacement at failure (mm)	4.923	4.384	4.867
Rate Horizontal displacement (mm/min)	0.5	0.5	0.5
Condition (Dry (D) / Submerged (S))	S	S	S



c' (kPa)	19
ϕ' (degrees)	44

Determination of Shear Strength by Direct Shear

Small Shearbox Apparatus BS1377:Part 7:1990, Clause 4

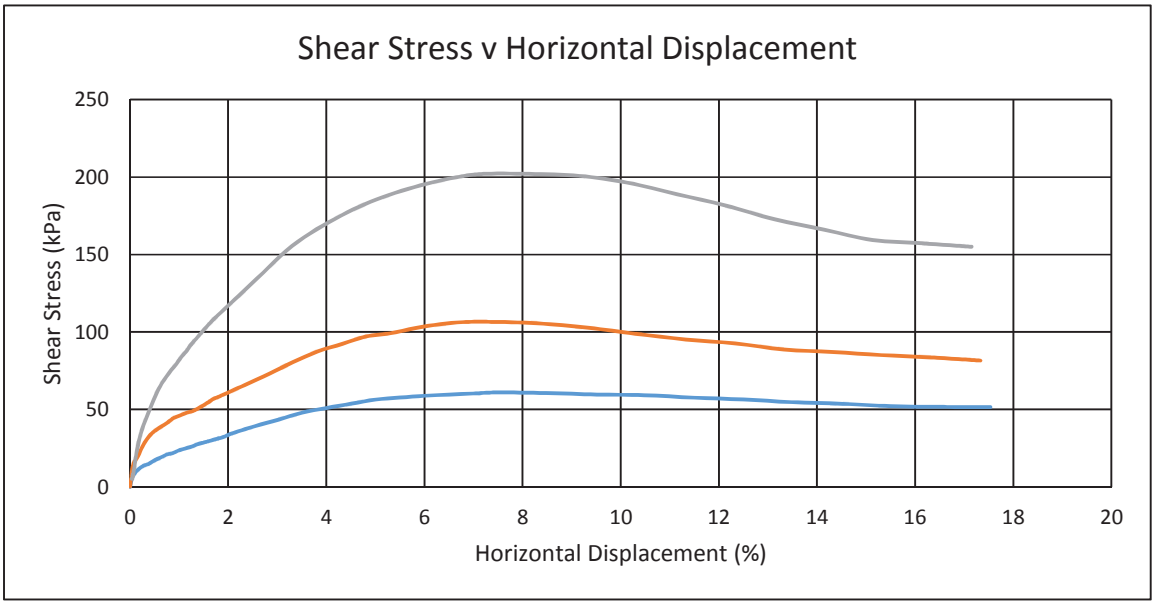
Contract: Priorsland Carrickmines

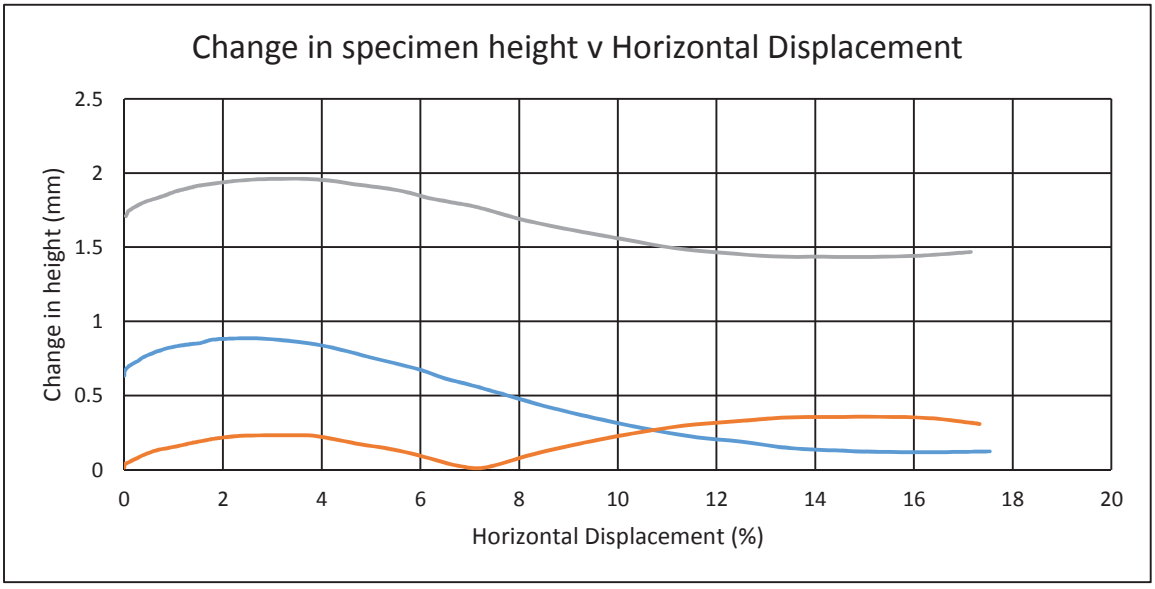
Contract No. 21319

Location: TP16 @ 1.5m

Sample No. 80670

Report No. R97027





Results relate to the specimen tested. Approved signatories ☐ J Barrett (Quality Manager) ☐ H Byrne (Laboratory Manager)	Approved by	Date
		20/12/18

(Diametrial) POINT LOAD STRENGTH INDEX TEST DATA

Contract: Priorsland, Carrickmines, Dublin 18
Contract no. 21319

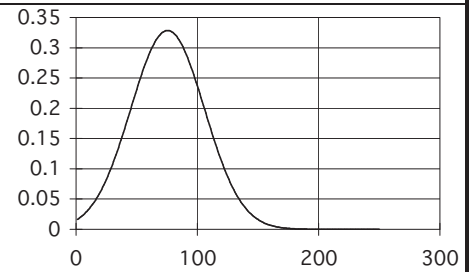
Sample Type: Core
Date of test: 11/12/18

RC No.	Depth m	D (Diameter) mm	P (failure load) kN	F	Is (index strength) Mpa	Is(50) (index strength) Mpa	*UCS MPa	Type	Orienation
RC01	6.1	78	20.0	1.222	3.29	4.02	80	d	//
	7.8	78	12.0	1.222	1.97	2.41	48	d	//
	8.8	78	4.0	1.222	0.66	0.80	16	d	//
	10.9	78	22.0	1.222	3.62	4.42	88	d	//
	11.7	78	15.0	1.222	2.47	3.01	60	d	//
	13.8	78	19.0	1.222	3.12	3.81	76	d	//
RC02	6.3	78	11.0	1.222	1.81	2.21	44	d	//
	7.6	78	18.0	1.222	2.96	3.61	72	d	//
	10.7	78	22.0	1.222	3.62	4.42	88	d	//
	13.4	78	20.0	1.222	3.29	4.02	80	d	//
RC03	7.2	78	28.0	1.222	4.60	5.62	112	d	//
	8.4	78	31.0	1.222	5.10	6.22	124	d	//
	9.9	78	8.0	1.222	1.31	1.61	32	d	//
	11.8	78	22.0	1.222	3.62	4.42	88	d	//
	12.3	78	21.0	1.222	3.45	4.22	84	d	//
	14.6	78	26.0	1.222	4.27	5.22	104	d	//
	14.8	78	11.0	1.222	1.81	2.21	44	d	//
RC04	5.1	78	6.0	1.222	0.99	1.20	24	d	//
	7.8	78	10.0	1.222	1.64	2.01	40	d	//
	9.2	78	18.0	1.222	2.96	3.61	72	d	//
	10.6	78	22.0	1.222	3.62	4.42	88	d	//
	10.8	78	19.0	1.222	3.12	3.81	76	d	//
	13.2	78	30.0	1.222	4.93	6.02	120	d	//
	13.4	78	28.0	1.222	4.60	5.62	112	d	//
	14.4	78	27.0	1.222	4.44	5.42	108	d	//

Statistical Summary Data	Is(50)	UCS*
Number of Samples Tested	25	25
Minimum	0.80	16
Average	3.77	75
Maximum	6.22	124
Standard Dev.	1.52	30
Upper 95% Confidence Limit	6.75	135.00
Lower 95% Confidence Limit	0.80	15.98

Comments:
*UCS taken as k x Point Load Is(50): k= 20

*UCS Normal Distribution Curve



Abbreviations	
i	irregular
a	axial
b	block
d	diametral

approx. orientation to planes of weakness/bedding

U	unknown
P	perpendicular
//	parallel

Appendix 7 Laboratory Test Results (Environmental)

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	18-37578-1
Initial Date of Issue:	06-Dec-2018
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	21319 Priorsland Carrickmines Dublin

Quotation No.:		**Date Received:**	29-Nov-2018
Order No.:		**Date Instructed:**	29-Nov-2018
No. of Samples:	30		
Turnaround (Wkdays):	5	**Results Due:**	05-Dec-2018
Date Approved:	06-Dec-2018		

Approved By:

Details: Martin Dyer, Laboratory Manager

Results - Leachate

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL					Chemtest Job No.:	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:					Chemtest Sample ID.:	733240	733242	733244	733246	733247	733249	733250	733251	733252	733253	733254	733256	733258
					Sample Location:	BH2	BH5	BH7	BH8	BH1A	BH3	BH4	BH6	BHRC2	BHRC3	BHRC4	TP2	TP9
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.00	1.00	0.50	0.50	1.00	0.50	1.00	1.00	1.00	1.00	1.00	0.60	0.70
Determinand	**Accred.**	**SOP**	**Units**	**LOD**														
Ammonium	U	1220	mg/l	0.050		0.22	0.11	0.22	0.076	0.15	0.11	0.077	0.17	0.11	0.19	0.17	0.58	0.16
Ammonium	N	1220	mg/kg	0.10		2.2	1.1	2.2	0.76	1.5	1.1	0.77	1.7	1.1	1.9	1.7	5.8	1.6
Boron (Dissolved)	U	1450	µg/l	20		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Boron (Dissolved)	U	1450	mg/kg	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Chemtest
The right chemistry to deliver results

Results - Leachate

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL				**Chemtest Job No.:**	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:				**Chemtest Sample ID.:**	733260	733261	733263	733265	733267	733268	733269
				Sample Location:	TP16	TP21	TP24	TP29	TP33	TP36	TP37
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.70	0.60	0.60	0.60	0.60	0.60	0.60
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Ammonium	U	1220	mg/l	0.050	0.20	0.16	0.13	0.090	0.14	0.088	0.14
Ammonium	N	1220	mg/kg	0.10	2.0	1.6	1.3	0.90	1.4	0.88	1.4
Boron (Dissolved)	U	1450	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Boron (Dissolved)	U	1450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL			**Chemtest Job No.:**	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:			**Chemtest Sample ID.:**	733240	733241	733242	733243	733244	733245	733246	733247	733248
			Sample Location:	BH2	BH3	BH5	BH5	BH7	BH7	BH8	BH1A	BH1A
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	1.00	1.00	1.00	2.00	0.50	2.00	0.50	1.00	2.00
			Asbestos Lab:	COVENTRY		COVENTRY		COVENTRY		COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-		-		-		-	-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected		No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	
Moisture	N	2030	%	0.020	5.3	18	13	7.6	31	9.5	23	11	11
pH	U	2010		N/A		[A] 8.1		[A] 8.6		[A] 8.7			[A] 8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40		< 0.40		0.52		< 0.40	< 0.40	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		< 0.010		< 0.010		< 0.010			< 0.010
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 6.5		[A] < 1.0		[A] 25		[A] 1.8	[A] < 1.0	
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50		[A] < 0.50		[A] < 0.50		[A] < 0.50	[A] < 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 44		[A] 1.6		[A] 13		[A] 2.1	[A] 2.8	
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.028		[A] < 0.010		[A] 0.084		[A] < 0.010	[A] 0.011	
Arsenic	U	2450	mg/kg	1.0	14		33		11		23	34	
Barium	U	2450	mg/kg	10	36		36		55		61	34	
Cadmium	U	2450	mg/kg	0.10	0.85		0.84		1.5		0.58	1.1	
Chromium	U	2450	mg/kg	1.0	9.2		19		13		28	8.2	
Molybdenum	U	2450	mg/kg	2.0	< 2.0		< 2.0		< 2.0		< 2.0	< 2.0	
Antimony	N	2450	mg/kg	2.0	< 2.0		< 2.0		< 2.0		< 2.0	< 2.0	
Copper	U	2450	mg/kg	0.50	8.1		13		13		12	9.0	
Mercury	U	2450	mg/kg	0.10	< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Nickel	U	2450	mg/kg	0.50	14		29		23		36	19	
Lead	U	2450	mg/kg	0.50	11		15		22		25	9.0	
Selenium	U	2450	mg/kg	0.20	0.24		0.28		1.1		0.95	0.31	
Zinc	U	2450	mg/kg	0.50	40		62		50		56	36	
Chromium (Trivalent)	N	2490	mg/kg	1.0	9.2		19		13		28	8.2	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50		< 0.50		< 0.50	< 0.50	
Fraction of Organic Carbon	U	2625		0.0010	[A] 0.0077		[A] 0.0044		[A] 0.020		[A] 0.0052	[A] 0.0037	
Total Organic Carbon	U	2625	%	0.20	[A] 0.77		[A] 0.44		[A] 2.0		[A] 0.52	[A] 0.37	
Mineral Oil	N	2670	mg/kg	10	< 10		< 10		< 10		< 10	< 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0		[A] < 5.0		[A] < 5.0	[A] < 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL					**Chemtest Job No.:**	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:					**Chemtest Sample ID.:**	733240	733241	733242	733243	733244	733245	733246	733247	733248
					Sample Location:	BH2	BH3	BH5	BH5	BH7	BH7	BH8	BH1A	BH1A
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.00	1.00	1.00	2.00	0.50	2.00	0.50	1.00	2.00
					Asbestos Lab:	COVENTRY		COVENTRY		COVENTRY		COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0		[A] < 5.0		[A] < 5.0		[A] < 5.0	[A] < 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10		[A] < 10		[A] < 10		[A] < 10	[A] < 10	
Benzene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Toluene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Ethylbenzene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
m & p-Xylene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
o-Xylene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0	
Naphthalene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Acenaphthene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Fluorene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Phenanthrene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Anthracene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Fluoranthene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Pyrene	U	2800	mg/kg	0.10		< 0.10		0.13		< 0.10		< 0.10	< 0.10	
Benzo[a]anthracene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Chrysene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Benzo[a]pyrene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Coronene	N	2800	mg/kg	0.10		< 0.10		< 0.10		< 0.10		< 0.10	< 0.10	
Total Of 17 PAH's	N	2800	mg/kg	2.0		< 2.0		< 2.0		< 2.0		< 2.0	< 2.0	
PCB 28	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 52	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 90+101	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 118	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 153	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 138	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 180	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010	
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10		[A] < 0.10		[A] < 0.10		[A] < 0.10		[A] < 0.10	[A] < 0.10	
Total Phenols	U	2920	mg/kg	0.30		< 0.30		< 0.30		< 0.30		< 0.30	< 0.30	

Chemtest
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Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL			**Chemtest Job No.:**		18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:			**Chemtest Sample ID.:**		733249	733250	733251	733252	733253	733254	733255	733256	733257
			Sample Location:		BH3	BH4	BH6	BHRC2	BHRC3	BHRC4	TP1	TP2	TP5
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	1.00	1.00	1.00	1.00	1.00	1.40	0.60	1.00
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-		-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	
Moisture	N	2030	%	0.020	19	20	17	17	16	16	14	6.7	20
pH	U	2010		N/A							[A] 8.0		[A] 7.7
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40		< 0.40	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010						< 0.010	< 0.010		< 0.010
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 5.3	[A] 2.6	[A] 2.4	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] 1.8	
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50		[A] < 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 2.9	[A] 2.8	[A] 2.3	[A] 8.9	[A] 0.91	[A] 1.6		[A] < 0.50	
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.048	[A] 0.018	[A] 0.025	[A] 0.018	[A] < 0.010	[A] 0.038		[A] 0.025	
Arsenic	U	2450	mg/kg	1.0	29	14	46	14	15	18		14	
Barium	U	2450	mg/kg	10	91	81	110	32	36	77		42	
Cadmium	U	2450	mg/kg	0.10	1.9	1.0	2.1	0.99	0.48	1.7		1.2	
Chromium	U	2450	mg/kg	1.0	21	24	18	16	17	27		11	
Molybdenum	U	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0	
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0	
Copper	U	2450	mg/kg	0.50	9.8	16	16	14	12	13		6.9	
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Nickel	U	2450	mg/kg	0.50	25	34	39	28	26	28		13	
Lead	U	2450	mg/kg	0.50	21	20	19	19	19	25		12	
Selenium	U	2450	mg/kg	0.20	0.71	0.28	0.24	1.3	< 0.20	0.46		0.35	
Zinc	U	2450	mg/kg	0.50	50	48	48	46	44	56		32	
Chromium (Trivalent)	N	2490	mg/kg	1.0	21	24	18	16	17	27		11	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	
Fraction of Organic Carbon	U	2625		0.0010	[A] 0.0092	[A] 0.0071	[A] 0.0035	[A] 0.0057	[A] 0.0030	[A] 0.0096		[A] 0.0062	
Total Organic Carbon	U	2625	%	0.20	[A] 0.92	[A] 0.71	[A] 0.35	[A] 0.57	[A] 0.30	[A] 0.96		[A] 0.62	
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10	< 10		< 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0		[A] < 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	

Chemtest
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Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL					**Chemtest Job No.:**	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:					**Chemtest Sample ID.:**	733249	733250	733251	733252	733253	733254	733255	733256	733257
					Sample Location:	BH3	BH4	BH6	BHRC2	BHRC3	BHRC4	TP1	TP2	TP5
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	1.00	1.00	1.00	1.00	1.00	1.40	0.60	1.00
					Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0		[A] < 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10		[A] < 10	
Benzene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Toluene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Ethylbenzene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
m & p-Xylene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
o-Xylene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	
Naphthalene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Acenaphthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Fluorene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Phenanthrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Anthracene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Benzo[a]anthracene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Chrysene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Benzo[a]pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Coronene	N	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Total Of 17 PAH's	N	2800	mg/kg	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0	
PCB 28	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	
PCB 52	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	
PCB 90+101	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	
PCB 118	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	
PCB 153	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	
PCB 138	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	
PCB 180	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10		[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10		[A] < 0.10	
Total Phenols	U	2920	mg/kg	0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	

Chemtest
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Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL			**Chemtest Job No.:**	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:			**Chemtest Sample ID.:**	733258	733259	733260	733261	733262	733263	733264	733265	733266
			Sample Location:	TP9	TP13	TP16	TP21	TP22	TP24	TP24	TP29	TP29
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	0.70	0.60	0.70	0.60	1.00	0.60	1.00	0.60	1.40
			Asbestos Lab:	COVENTRY		COVENTRY	COVENTRY		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-		-	-		-		-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected		No Asbestos Detected		No Asbestos Detected	
Moisture	N	2030	%	0.020	33	12	13	17	18	15	53	22	13
pH	U	2010		N/A		[A] 7.2			[A] 7.1		[A] 6.4		[A] 8.4
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40		< 0.40	< 0.40		< 0.40		< 0.40	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		< 0.010			< 0.010		0.77		< 0.010
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 1.9		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] 1.1	
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50		[A] < 0.50	[A] < 0.50		[A] < 0.50		[A] < 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 1.3		[A] < 0.50	[A] < 0.50		[A] 5.5		[A] < 0.50	
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.062		[A] 0.012	[A] < 0.010		[A] < 0.010		[A] 0.013	
Arsenic	U	2450	mg/kg	1.0	1.8		11	8.3		25		31	
Barium	U	2450	mg/kg	10	38		51	47		51		150	
Cadmium	U	2450	mg/kg	0.10	2.4		1.3	1.1		1.1		0.33	
Chromium	U	2450	mg/kg	1.0	14		19	18		15		22	
Molybdenum	U	2450	mg/kg	2.0	< 2.0		< 2.0	< 2.0		< 2.0		4.0	
Antimony	N	2450	mg/kg	2.0	< 2.0		< 2.0	< 2.0		< 2.0		< 2.0	
Copper	U	2450	mg/kg	0.50	9.2		11	12		11		4.9	
Mercury	U	2450	mg/kg	0.10	< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Nickel	U	2450	mg/kg	0.50	11		27	28		23		24	
Lead	U	2450	mg/kg	0.50	13		18	14		15		16	
Selenium	U	2450	mg/kg	0.20	2.2		0.35	0.33		< 0.20		0.47	
Zinc	U	2450	mg/kg	0.50	25		42	40		33		36	
Chromium (Trivalent)	N	2490	mg/kg	1.0	14		19	18		15		22	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50		< 0.50		< 0.50	
Fraction of Organic Carbon	U	2625		0.0010	[A] 0.026		[A] 0.0039	[A] 0.0037		[A] 0.0023		[A] 0.0062	
Total Organic Carbon	U	2625	%	0.20	[A] 2.6		[A] 0.39	[A] 0.37		[A] 0.23		[A] 0.62	
Mineral Oil	N	2670	mg/kg	10	< 10		< 10	< 10		< 10		< 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0	[A] < 5.0		[A] < 5.0		[A] < 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL					**Chemtest Job No.:**	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578	18-37578
Quotation No.:					**Chemtest Sample ID.:**	733258	733259	733260	733261	733262	733263	733264	733265	733266
					Sample Location:	TP9	TP13	TP16	TP21	TP22	TP24	TP24	TP29	TP29
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.70	0.60	0.70	0.60	1.00	0.60	1.00	0.60	1.40
					Asbestos Lab:	COVENTRY		COVENTRY	COVENTRY		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0		[A] < 5.0	[A] < 5.0		[A] < 5.0		[A] < 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10		[A] < 10	[A] < 10		[A] < 10		[A] < 10	
Benzene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Toluene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Ethylbenzene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
m & p-Xylene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
o-Xylene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0	
Naphthalene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Acenaphthene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Fluorene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Phenanthrene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Anthracene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Fluoranthene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Pyrene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Benzo[a]anthracene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Chrysene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Benzo[a]pyrene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Coronene	N	2800	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10		< 0.10	
Total Of 17 PAH's	N	2800	mg/kg	2.0		< 2.0		< 2.0	< 2.0		< 2.0		< 2.0	
PCB 28	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	
PCB 52	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	
PCB 90+101	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	
PCB 118	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	
PCB 153	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	
PCB 138	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	
PCB 180	U	2815	mg/kg	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10		[A] < 0.10		[A] < 0.10	[A] < 0.10		[A] < 0.10		[A] < 0.10	
Total Phenols	U	2920	mg/kg	0.30		< 0.30		< 0.30	< 0.30		< 0.30		< 0.30	

Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL				**Chemtest Job No.:**	18-37578	18-37578	18-37578
Quotation No.:				**Chemtest Sample ID.:**	733267	733268	733269
				Sample Location:	TP33	TP36	TP37
				Sample Type:	SOIL	SOIL	SOIL
				Top Depth (m):	0.60	0.60	0.60
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	14	12	12
pH	U	2010		N/A			
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010			
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 3.7	[A] < 1.0	[A] 1.7
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 2.1	[A] < 0.50	[A] 9.8
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.013	[A] < 0.010	[A] < 0.010
Arsenic	U	2450	mg/kg	1.0	3.0	7.1	24
Barium	U	2450	mg/kg	10	40	71	55
Cadmium	U	2450	mg/kg	0.10	0.12	1.2	1.1
Chromium	U	2450	mg/kg	1.0	16	20	20
Molybdenum	U	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0	3.2
Copper	U	2450	mg/kg	0.50	3.2	13	19
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	7.5	29	39
Lead	U	2450	mg/kg	0.50	10	19	20
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	19	44	56
Chromium (Trivalent)	N	2490	mg/kg	1.0	16	20	20
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon	U	2625		0.0010	[A] 0.0038	[A] 0.0027	[A] 0.0047
Total Organic Carbon	U	2625	%	0.20	[A] 0.38	[A] 0.27	[A] 0.47
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 21319 Priorsland Carrickmines Dublin

Client: IGSL			**Chemtest Job No.:**		18-37578	18-37578	18-37578
Quotation No.:			**Chemtest Sample ID.:**		733267	733268	733269
			Sample Location:		TP33	TP36	TP37
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.60	0.60	0.60
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 138	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 180	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733240						
Sample Ref:							
Sample ID:							
Sample Location:	BH2						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.77	3	5	6
Loss On Ignition	2610	U	%	1.6	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.047	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0020	< 0.050	0.5	2	25
Barium	1450	U	0.0036	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0014	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0015	< 0.050	0.5	10	30
Nickel	1450	U	0.0014	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0025	< 0.50	4	50	200
Chloride	1220	U	2.3	23	800	15000	25000
Fluoride	1220	U	0.18	1.8	10	150	500
Sulphate	1220	U	16	160	1000	20000	50000
Total Dissolved Solids	1020	N	65	650	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	16	160	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	5.3

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733242						
Sample Ref:							
Sample ID:							
Sample Location:	BH5						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.44	3	5	6
Loss On Ignition	2610	U	%	1.7	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.22	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0013	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0011	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	3.7	37	800	15000	25000
Fluoride	1220	U	0.32	3.2	10	150	500
Sulphate	1220	U	2.8	28	1000	20000	50000
Total Dissolved Solids	1020	N	65	650	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	13	130	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733244						
Sample Ref:							
Sample ID:							
Sample Location:	BH7						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.0	3	5	6
Loss On Ignition	2610	U	%	4.9	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.018	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0067	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0023	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	2.8	28	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	21	210	1000	20000	50000
Total Dissolved Solids	1020	N	98	960	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.4	54	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	31

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733246						
Sample Ref:							
Sample ID:							
Sample Location:	BH8						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.52	3	5	6
Loss On Ignition	2610	U	%	2.7	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.022	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0039	< 0.050	0.5	2	25
Barium	1450	U	0.0039	< 0.50	20	100	300
Cadmium	1450	U	0.00013	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0020	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0068	0.068	0.4	10	40
Lead	1450	U	0.0049	0.049	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0011	0.011	0.1	0.5	7
Zinc	1450	U	0.0067	< 0.50	4	50	200
Chloride	1220	U	2.2	22	800	15000	25000
Fluoride	1220	U	0.20	2.0	10	150	500
Sulphate	1220	U	7.0	70	1000	20000	50000
Total Dissolved Solids	1020	N	65	650	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	100	1000	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	23

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733247						
Sample Ref:							
Sample ID:							
Sample Location:	BH1A						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.37	3	5	6
Loss On Ignition	2610	U	%	1.3	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.040	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	< 0.0010	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0017	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.0	10	800	15000	25000
Fluoride	1220	U	0.20	2.0	10	150	500
Sulphate	1220	U	5.3	53	1000	20000	50000
Total Dissolved Solids	1020	N	26	260	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	60	600	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	11

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733249						
Sample Ref:							
Sample ID:							
Sample Location:	BH3						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.92	3	5	6
Loss On Ignition	2610	U	%	3.5	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.031	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0018	< 0.050	0.5	2	25
Barium	1450	U	0.0013	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0012	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	4.1	41	1000	20000	50000
Total Dissolved Solids	1020	N	47	470	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	64	640	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	19

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733250						
Sample Ref:							
Sample ID:							
Sample Location:	BH4						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.71	3	5	6
Loss On Ignition	2610	U	%	3.5	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.042	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0022	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.0	10	800	15000	25000
Fluoride	1220	U	0.33	3.3	10	150	500
Sulphate	1220	U	2.2	22	1000	20000	50000
Total Dissolved Solids	1020	N	38	380	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	16	160	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733251						
Sample Ref:							
Sample ID:							
Sample Location:	BH6						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.35	3	5	6
Loss On Ignition	2610	U	%	2.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.032	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0015	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0026	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.39	3.9	10	150	500
Sulphate	1220	U	10	100	1000	20000	50000
Total Dissolved Solids	1020	N	85	840	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	88	880	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733252						
Sample Ref:							
Sample ID:							
Sample Location:	BHRC2						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.57	3	5	6
Loss On Ignition	2610	U	%	1.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.040	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0036	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0022	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0015	0.015	0.06	0.7	5
Selenium	1450	U	0.0024	0.024	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.8	18	800	15000	25000
Fluoride	1220	U	0.24	2.4	10	150	500
Sulphate	1220	U	11	110	1000	20000	50000
Total Dissolved Solids	1020	N	85	840	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	59	590	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733253						
Sample Ref:							
Sample ID:							
Sample Location:	BHRC3						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.30	3	5	6
Loss On Ignition	2610	U	%	1.6	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.046	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0057	0.057	0.5	2	25
Barium	1450	U	0.0014	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0018	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0064	0.064	0.4	10	40
Lead	1450	U	0.0020	0.020	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0026	< 0.50	4	50	200
Chloride	1220	U	2.1	21	800	15000	25000
Fluoride	1220	U	0.30	3.0	10	150	500
Sulphate	1220	U	5.4	54	1000	20000	50000
Total Dissolved Solids	1020	N	29	290	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	59	590	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733254						
Sample Ref:							
Sample ID:							
Sample Location:	BHRC4						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.96	3	5	6
Loss On Ignition	2610	U	%	3.5	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		6.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.051	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0026	< 0.050	0.5	2	25
Barium	1450	U	0.0026	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0014	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0026	< 0.050	0.4	10	40
Lead	1450	U	0.0013	0.013	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0023	< 0.50	4	50	200
Chloride	1220	U	1.2	12	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	9.4	94	1000	20000	50000
Total Dissolved Solids	1020	N	38	380	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	64	640	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733256						
Sample Ref:							
Sample ID:							
Sample Location:	TP2						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.62	3	5	6
Loss On Ignition	2610	U	%	2.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.036	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0036	< 0.050	0.5	2	25
Barium	1450	U	0.0041	< 0.50	20	100	300
Cadmium	1450	U	0.00013	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0024	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0025	< 0.050	0.4	10	40
Lead	1450	U	0.0014	0.014	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0034	< 0.50	4	50	200
Chloride	1220	U	1.1	11	800	15000	25000
Fluoride	1220	U	0.30	3.0	10	150	500
Sulphate	1220	U	1.8	18	1000	20000	50000
Total Dissolved Solids	1020	N	42	420	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	63	630	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	6.7

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733258						
Sample Ref:							
Sample ID:							
Sample Location:	TP9						
Top Depth(m):	0.70						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.6	3	5	6
Loss On Ignition	2610	U	%	8.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.049	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0014	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0025	0.025	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	2.4	24	800	15000	25000
Fluoride	1220	U	0.15	1.5	10	150	500
Sulphate	1220	U	2.6	26	1000	20000	50000
Total Dissolved Solids	1020	N	41	400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	17	170	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	33

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733260						
Sample Ref:							
Sample ID:							
Sample Location:	TP16						
Top Depth(m):	0.70						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.39	3	5	6
Loss On Ignition	2610	U	%	2.2	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		6.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.039	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0017	< 0.050	0.5	2	25
Barium	1450	U	0.0019	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0012	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0025	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0027	< 0.50	4	50	200
Chloride	1220	U	1.4	14	800	15000	25000
Fluoride	1220	U	0.13	1.3	10	150	500
Sulphate	1220	U	4.2	42	1000	20000	50000
Total Dissolved Solids	1020	N	29	290	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	90	900	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733261						
Sample Ref:							
Sample ID:							
Sample Location:	TP21						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.37	3	5	6
Loss On Ignition	2610	U	%	1.7	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.045	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0011	< 0.050	0.5	2	25
Barium	1450	U	0.0017	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0018	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0015	< 0.50	4	50	200
Chloride	1220	U	1.6	16	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	2.9	29	1000	20000	50000
Total Dissolved Solids	1020	N	44	440	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	69	690	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733263						
Sample Ref:							
Sample ID:							
Sample Location:	TP24						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.23	3	5	6
Loss On Ignition	2610	U	%	1.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.077	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0010	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.27	2.7	10	150	500
Sulphate	1220	U	1.3	13	1000	20000	50000
Total Dissolved Solids	1020	N	61	600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	14	140	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733265						
Sample Ref:							
Sample ID:							
Sample Location:	TP29						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.62	3	5	6
Loss On Ignition	2610	U	%	5.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		6.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.059	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0018	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.52	5.2	10	150	500
Sulphate	1220	U	3.3	33	1000	20000	50000
Total Dissolved Solids	1020	N	72	710	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	89	890	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	22

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733267						
Sample Ref:							
Sample ID:							
Sample Location:	TP33						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.38	3	5	6
Loss On Ignition	2610	U	%	1.5	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.047	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0012	< 0.050	0.5	2	25
Barium	1450	U	0.0061	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0013	0.013	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.18	1.8	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	46	450	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	19	190	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733268						
Sample Ref:							
Sample ID:							
Sample Location:	TP36						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.27	3	5	6
Loss On Ignition	2610	U	%	1.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.051	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0063	0.063	0.5	2	25
Barium	1450	U	0.0032	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0048	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0090	0.090	0.4	10	40
Lead	1450	U	0.0035	0.035	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.011	< 0.50	4	50	200
Chloride	1220	U	1.2	12	800	15000	25000
Fluoride	1220	U	0.43	4.3	10	150	500
Sulphate	1220	U	6.4	64	1000	20000	50000
Total Dissolved Solids	1020	N	31	310	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	3.8	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	12

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21319 Priorsland Carrickmines Dublin

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-37578						
Chemtest Sample ID:	733269						
Sample Ref:							
Sample ID:							
Sample Location:	TP37						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.47	3	5	6
Loss On Ignition	2610	U	%	2.6	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.065	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0023	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0015	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.40	4.0	10	150	500
Sulphate	1220	U	2.2	22	1000	20000	50000
Total Dissolved Solids	1020	N	47	470	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	16	160	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	12

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Chemtest
The right chemistry to deliver results

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
733240			BH2		A	Amber Glass 250ml
733240			BH2		A	Amber Glass 60ml
733241			BH3		A	Amber Glass 250ml
733242			BH5		A	Amber Glass 250ml
733242			BH5		A	Amber Glass 60ml
733243			BH5		A	Amber Glass 250ml
733244			BH7		A	Amber Glass 250ml
733244			BH7		A	Amber Glass 60ml
733245			BH7		A	Amber Glass 250ml
733246			BH8		A	Amber Glass 250ml
733246			BH8		A	Amber Glass 60ml
733247			BH1A		A	Amber Glass 250ml
733247			BH1A		A	Amber Glass 60ml
733248			BH1A		A	Amber Glass 250ml
733249			BH3		A	Amber Glass 250ml
733249			BH3		A	Amber Glass 60ml
733250			BH4		A	Amber Glass 250ml
733250			BH4		A	Amber Glass 60ml
733251			BH6		A	Amber Glass 250ml
733251			BH6		A	Amber Glass 60ml
733252			BHRC2		A	Amber Glass 250ml
733252			BHRC2		A	Amber Glass 60ml

Chemtest
The right chemistry to deliver results

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
733253			BHRC3		A	Amber Glass 250ml
733253			BHRC3		A	Amber Glass 60ml
733254			BHRC4		A	Amber Glass 250ml
733254			BHRC4		A	Amber Glass 60ml
733255			TP1		A	Amber Glass 250ml
733256			TP2		A	Amber Glass 250ml
733256			TP2		A	Amber Glass 60ml
733257			TP5		A	Amber Glass 250ml
733258			TP9		A	Amber Glass 250ml
733258			TP9		A	Amber Glass 60ml
733259			TP13		A	Amber Glass 250ml
733260			TP16		A	Amber Glass 250ml
733260			TP16		A	Amber Glass 60ml
733261			TP21		A	Amber Glass 250ml
733261			TP21		A	Amber Glass 60ml
733262			TP22		A	Amber Glass 250ml
733263			TP24		A	Amber Glass 250ml
733263			TP24		A	Amber Glass 60ml
733264			TP24		A	Amber Glass 250ml
733265			TP29		A	Amber Glass 250ml
733265			TP29		A	Amber Glass 60ml

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
733266			TP29		A	Amber Glass 250ml
733267			TP33		A	Amber Glass 250ml
733267			TP33		A	Amber Glass 60ml
733268			TP36		A	Amber Glass 250ml
733268			TP36		A	Amber Glass 60ml
733269			TP37		A	Amber Glass 250ml
733269			TP37		A	Amber Glass 60ml

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

Test Methods

SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

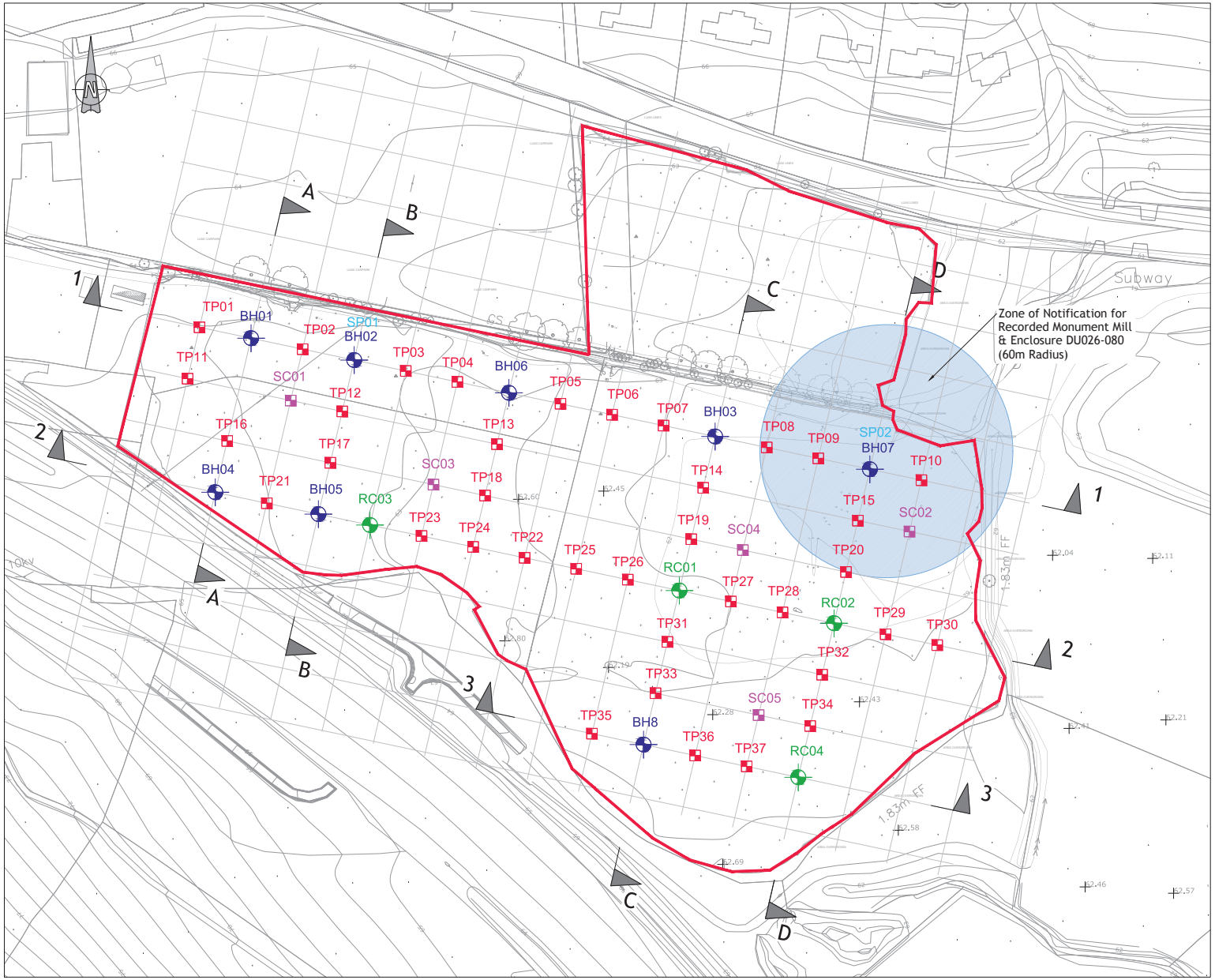
A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix 8 Site Plan



PROPOSED SITE INVESTIGATION

LEGEND

- Trial Pit Location
- Bore Hole Location — BH01
- Rotary Core Location — RC01
- Stand Pipe Location — SP01
- Soakaway Test — SC01
- Approx. Site Boundary

NOTES FOR SITE INVESTIGATION WORKS OPTION 2:

1. SITE AREA = APPROX. 8.3ha.
2. TOTAL NUMBER TEST POINTS PROPOSED:
   - 2.1. ROTARY CORES = 4no.
   - 2.2. BOREHOLES = 8no.
   - 2.3. TRIAL PITS = 32no.
   - 2.4. STANDPIPES = 3no.
   - 2.5. SOAKAWAY TESTS = 5no.
3. CONTRACTOR TO REFER TO PUNCH SITE INVESTIGATION SPECIFICATION FOR FURTHER INFORMATION ON WORK REQUIREMENTS, CONTRACTUAL REQUIREMENTS AND HEALTH AND SAFETY REQUIREMENTS.
4. SITE INVESTIGATION CONTRACTOR TO PROVIDE LONGSECTIONS FOR BOREHOLES FOR A-A, B-B, C-C, D-D, 1-1, 2-2 AND 3-3.

COLOUR DRAWING ☒

Date Drawn:	SEP 2018
Drawn By:	JB
Date Issued:	
Issued By:	

Rev	Amendment	By	Date

Client:

Job: RESIDENTIAL DEVELOPMENT PRIORSLANDS CARRICKMINES
Title: PROPOSED REDUCED SITE INVESTIGATION LAYOUT

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Stage:	INFORMATION
Scale @ A1:	1:1000
Technician Check:	JB
Engineer Check:	PC
Approved:	PC
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