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Ground Investigations Ireland

Ballincor Wind Farm

Tobin

Ground Investigation Report

March 2025

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Engineer	Tobin
Client	RWE
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Ground Investigations Ireland Ltd. present the results of the fieldworks and laboratory testing in accordance with the specification and related documents provided by or on behalf of the client. The possibility of variation in the ground and/or groundwater conditions between or below exploratory locations or due to the investigation techniques employed must be taken into account when this report and the appendices inform designs or decisions where such variation may be considered relevant. Ground and/or groundwater conditions may vary due to seasonal, man-made or other activities not apparent during the fieldworks and no responsibility can be taken for such variation. The data presented and the recommendations included in this report and associated appendices are intended for the use of the client and the client's geotechnical representative only and any duty of care to others is excluded unless approved in writing.

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APPENDICES

1.0 Preamble

On the instructions of Tobin Consulting Engineers, a site investigation was carried out by Ground Investigations Ireland Ltd., between July and September 2024 at the site of the proposed wind farm in Ballincor Co. Offaly.

2.0 Overview

2.1. Background

It is proposed to construct a new Wind Farm with associated services and access roads at the proposed site. The site is currently a mixture of peat bogs, forests, wetland and agricultural land situated approximately 7km South of Birr, Co. Offaly. The proposed construction is envisaged to consist of pile foundations and conventional pavement make up with some local excavations for services and plant.

2.2. Purpose and Scope

The purpose of the site investigation was to investigate subsurface conditions utilising a variety of investigative methods in accordance with the project specification. The scope of the work undertaken for this project included the following:

- Visit project site to observe existing conditions
- Carry out 23 No. Trial Pits to a maximum depth of 3.90m BGL
- Carry out 3 No. Rotary Core Boreholes to a maximum depth of 18.80m BGL
- Geotechnical Laboratory testing
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.
The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

3.2. Trial Pits

The trial pits were excavated using a 8T tracked excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for

encountering services during the excavation. The trial pits were sampled, logged and photographed by a Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report.

3.3. Rotary Boreholes

The rotary coring was carried out by a track mounted T44 Beretta rig at the locations shown on the location plan in Appendix 1. The rotary boreholes were completed from the ground surface or alternatively, where noted on the individual borehole log, from the base of the cable percussion borehole where a temporary liner was installed to facilitate follow-on rotary coring.
The T44 Beretta is equipped with rubber tracks which allow for short travel on pavement surfaces avoiding any damage to the surface. The T44 Beretta utilises a triple tube core barrel system operated using a wireline drilling process. The outer barrel is rotated by the drill rods and at its lower end, carries the coring bit. The inner barrel is mounted on a swivel so that it does not rotate during the process. The third barrel or liner is placed within the second one to retain the core intact and to preserve as much as possible the fabric of the drilling stratum. The core is cut by the coring bit and passes to the inner liner. The core is brought up to the surface within the inner barrel on a small diameter wire rope or line attached to the “overshoot” recovery tool which is then placed into a core box in order of recovery. A drilling fluid, typically air mist or water flush is passed from the surface through hollow drill rods to the drill bit and is used to cool the drill bit. Temporary casing is used in some situations to support unstable ground or to seal off fissures or voids. It should be noted that the rotary coring can only achieve limited recovery in overburden, particularly granular or weakly cemented strata due to the flushing medium washing away the cohesive fraction during coring. The recovery achieved, where required is noted on the borehole logs and core photographs are provided to allow assessment of the core recovered. The rotary borehole logs are provided in Appendix 3 of this Report.

3.4. Surveying

The exploratory hole locations have been recorded using a KQ GEO Technologies KQ-M8 System which records the coordinates and elevation of the locations to ITM as required by the project specification. The coordinates and elevations are provided on the exploratory hole logs in the appendices of this Report.

3.5. Laboratory Testing

Samples were selected from the exploratory holes for a range of geotechnical testing to assist in the classification of soils and to provide information for the proposed design.
Geotechnical testing consisting of moisture content, Atterberg limits, Particle Size Distribution (PSD), hydrometer and Moisture Condition Value (MCV) tests were carried out in Professional Soils Laboratory (PSL Ltd) in the UK.

The results of the laboratory testing are included in Appendix 4 of this Report.

4.0 Ground Conditions

4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were variable across the site and generally comprised;

- Topsoil
- Peat
- Made Ground
- Cohesive Deposits
- Granular Deposits
- Weathered Bedrock

TOPSOIL: Topsoil was encountered in BH02, TP01, TP01A, TP05, TP06, TP07, TP10, TP14, TP15, TP17, TP18, TP21, TP22 and TP23 and was present to a maximum depth of 0.30m BGL.

PEAT: Peat was encountered in BH02, BH03, TP02, TP03, TP04, TP08, TP09, TP12, TP15. TP16, TP19 and TP20 and was present to depths between 0.45m and 3.80m BGL.

MADE GROUND: Made Ground deposits were encountered from ground level in TP11 and TP19 and were present to a consistent depth of between 0.25m and 0.50m BGL. These deposits were described generally as *brown slightly sandy slightly gravelly Clay with low cobble content* or *brown Peat with rare fragments of plastic.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Topsoil/Peat and were described typically as *grey slightly sandy slightly gravelly CLAY with cobbles and boulders* or *light grey and white clayey peaty SILT*. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the cohesive matrix. These deposits had low, medium or high cobble and boulder content, where noted on the exploratory hole logs.

GRANULAR DEPOSITS: Granular deposits were encountered below the cohesive deposits at BH02, TP01, TP01A, TP02, TP03, TP05, TP06, TP07, TP10, TP14, TP15, TP16, TP17 TP18, TP21 and TP23 and were typically described as *greyish brown clayey sandy subangular to subrounded fine to coarse GRAVEL with cobbles and boulders* or *greyish brown clayey gravelly fine to coarse SAND.* The secondary sand/gravel and silt/clay constituents varied across the site and with depth while low, medium or high cobble and boulder content also present where noted on the exploratory hole logs.

It should be noted that many of the trial pits where granular deposits or groundwater were encountered, experienced instability. This was described either as side wall spalling or as side wall collapse in the remarks section at the base of the trial pit logs.

WEATHERED BEDROCK: In TP18 weathered bedrock was encountered which was diggable with the large excavator to a depth of up to 0.80m below the top of the stratum. The trial pit was terminated upon encountering the more competent bedrock, in which further excavation became more difficult. This material was recovered typically as *black angular to subangular fine to coarse Gravel with low cobble content* however there was some variability in the fracture spacing and the ease at which the excavator could progress. Some clay and sand were also present with the rock mass either from weathering or as infilling to fractures which were opened upon excavation.

4.2. Groundwater

Groundwater strikes are noted on the exploratory hole logs where they occurred. We would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the time of year, rainfall, nearby construction and other factors.

4.3. Laboratory Testing

4.3.1. Geotechnical Laboratory Testing

The geotechnical testing carried out on soil samples recovered generally confirm the descriptions on the logs with the primary constituent of the cohesive deposits found to be a CLAY of intermediate plasticity or a SILT of high plasticity. The Particle Size Distribution tests confirm that generally the cohesive deposits are well-graded with percentages of sands and gravels ranging between 27% and 40% generally with fines contents of 30 to 36%.
The Particle Size Distribution tests confirm that generally the granular deposits are well-graded with percentages of sands and silt/clay typically between 6% and 41% with a gravel content of typically 46% to 61%.

The results from the completed laboratory testing are included in Appendix 4 of this report.

5.0 Recommendations & Conclusions

5.1. General

The recommendations given and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between exploratory hole locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the exploratory holes. Limited information has been provided at the ground investigation stage and any designs based on the recommendations or conclusions should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory hole logs.

5.2. Foundations

Due to the presence of soft and compressible Cohesive deposits beneath the footprint of the proposed structure and high loading anticipated, piled foundations may be more economically advantageous for the proposed wind turbines. The type, size and depth of the pile foundations should be confirmed by a specialist piling contractor based on the loading from the proposed wind turbines. The foundation platform is recommended be suspended and also supported on the piles.
Negative skin friction from the very soft cohesive deposits should be considered in the pile design due to the possibility of loading from working platforms or the adjacent pavement make up.

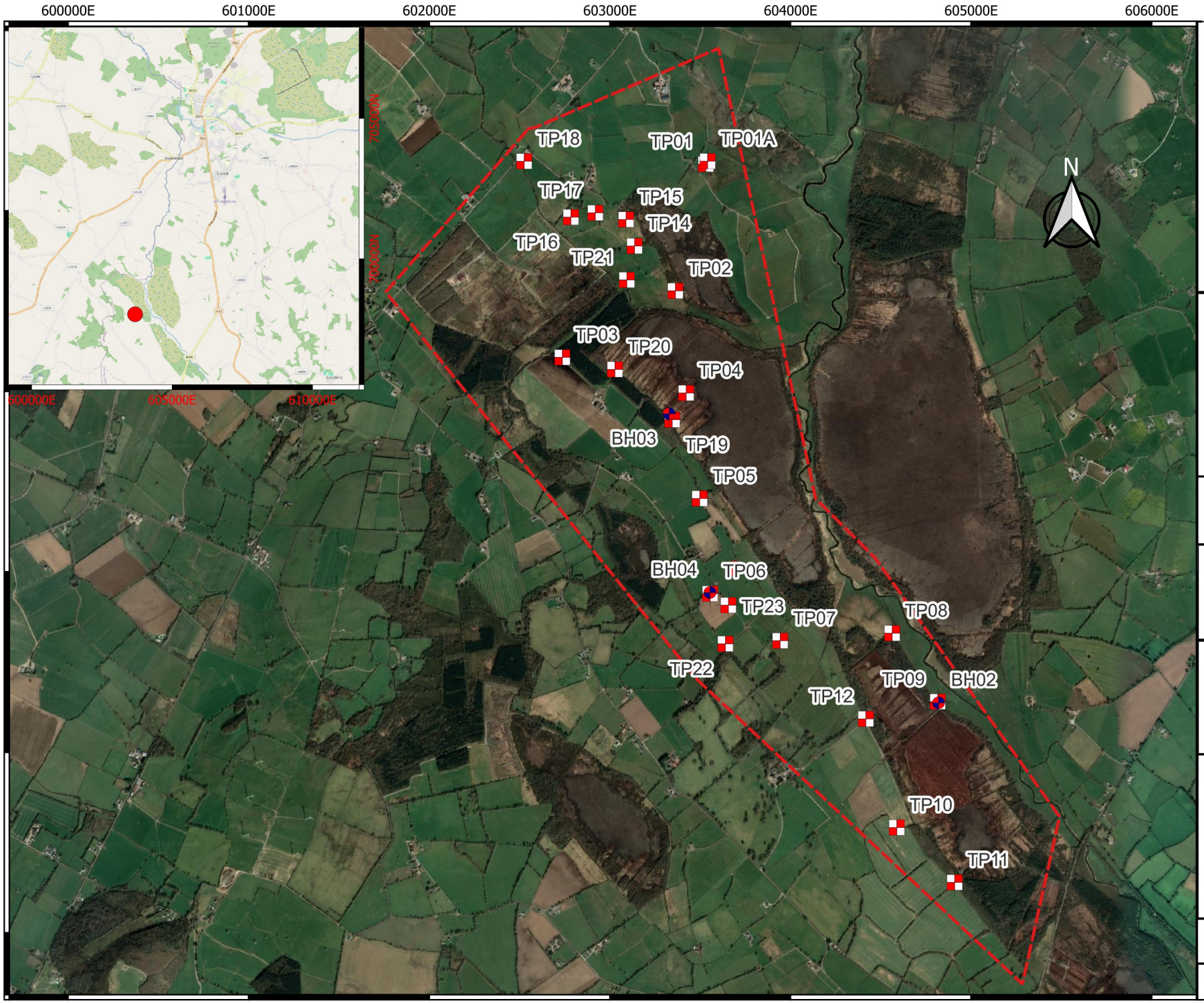
5.3. Excavations

Short term temporary excavations in the cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25m BGL or is required to permit man entry.
Excavations in the Made Ground, Peat or soft Cohesive Deposits will require to be appropriately battered or the sides supported due to the low strength of these deposits.
Any excavations which penetrate the granular deposits will require to be appropriately battered or the sides supported and are likely to require dewatering due to the groundwater seepages noted in the exploratory hole logs in the Appendices of this Report.
The groundwater and stability noted on the trial pit logs should be consulted when determining the most appropriate construction methods for excavations.

Excavations in the upper cohesive and weathered rock deposits are expected to be excavatable with conventional excavation equipment, with zones of more intact bedrock below this depth requiring rock breaking techniques.
Any waste material to be removed off site should be disposed of to a suitably licenced landfill.
A waste classification report is recommended to be carried out to provide an interpretation of the laboratory data should any material be required to be disposed of off site.

The recommendations provided in this report should be verified in the design of the proposed turbines, using the full details of the loading conditions and taking into consideration the allowable tolerable settlements/movements that the turbines can accommodate. The founding strata should be inspected and verified by a suitably qualified engineer prior to construction of the wind turbine foundations.

APPENDIX 1 - Site Location Plan



Site Boundary

Site Location

Trial Pit

RC Borehole

Client:

TOBIN
CONSULTING ENGINEERS

Project Code:

13919-06-24

Project Title:

Ballincor Wind Farm Shinrone
Co. Offaly

Drawing Title:

Figure 1 Site Location and Layout

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0 0.5 1 km

Drawn By:	Date:
AM	26/11/24

APPENDIX 2 – Trial Pit Records

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Site Lands South of Birr			**Trial Pit Number** TP01
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 4.50 x 1.70 x 1.90m (L x W x D)	**Ground Level (mOD)** 45.64	**Client** RWE	**Job Number** 13919-06-24
	Location 603530.9 E 700252.1 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Brown slightly sandy slightly gravelly Clay with rootlets.		
				45.44	0.20	Firm to stiff grey slightly sandy slightly gravelly CLAY with medium angular to subangular cobble and large angular to subangular boulder content. Gravels are angular to subangular medium to coarse.		
					(0.90)			
1.00	B1			44.54	1.10	Grey slightly clayey slightly sandy angular to subangular medium to coarse GRAVEL with medium subangular cobble and boulder content.		
			Slow ingress(1) at 1.50m.		(0.80)			▽1
1.90	B2			43.74	1.90	Complete at 1.90m		

Plan

Remarks

Groundwater encountered at 1.50m BGL with slow ingress.
Trial pit sidewalls spalling.
Trial pit terminated due to obstruction; possible boulders or bedrock.
Trial pit reattempted adjacent to TP01.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP01

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Site Lands South of Birr			**Trial Pit Number** TP01A
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.40 x 1.60 x 2.60m (L x W x D)	**Ground Level (mOD)** 45.19	**Client** RWE	**Job Number** 13919-06-24
	Location 603540.6 E 700268.1 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Dark brown slightly peaty Clay with rootlets.		
				44.99	0.20	Soft to firm grey mottled yellowish brown CLAY with low organic matter content.		
					(1.20)			
1.00	B1							
				43.79	1.40	Grey sandy angular to subangular fine to coarse GRAVEL with medium subrounded to rounded cobble and large subrounded to rounded boulder content.		
					(1.20)			
2.10	B2		Moderate ingress(1) at 2.10m.					▽1
				42.59	2.60	Complete at 2.60m		

Plan

Remarks

Groundwater encountered at 2.10m BGL with moderate ingress.
Trial pit sidewalls collapsing below 1.40m BGL.
Trial pit terminated due to sidewall collapse and groundwater ingress.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP01A

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Site Lands South of Birr			**Trial Pit Number** TP02
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.00 x 1.10 x 3.40m (L x W x D)	**Ground Level (mOD)** 45.27	**Client** RWE	**Job Number** 13919-06-24
	Location 603362.4 E 699549.8 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				45.17	(0.10) 0.10	Very soft black PEAT with rootlets.		
						Very soft black PEAT with low organic content.		
0.30	SV 14kPa		12,18,12/Av. 14.00		(0.35)			
				44.82	0.45	Firm grey slightly clayey SILT.		
1.00	B1							
					(1.85)			
2.00	B2							
				42.97	2.30	Grey slightly clayey sandy subangular to subrounded medium to coarse GRAVEL with low subrounded to rounded cobble content. (wet)		
					(1.10)			
			Moderate ingress(1) at 3.10m.					▽1
				41.87	3.40	Complete at 3.40m		

Plan

Remarks

Groundwater encountered at 3.10m BGL with moderate ingress.
Trial pit sidewalls collapsing below 3.10m BGL.
Trial pit terminated due to sidewall collapse and groundwater ingress.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP02

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Site Lands South of Birr			**Trial Pit Number** TP03
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.30 x 0.80 x 2.50m (L x W x D)	**Ground Level (mOD)** 45.70	**Client** RWE	**Job Number** 13919-06-24
	Location 602736.3 E 699181.1 N	**Dates** 31/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.70)	Very soft black PEAT with rootlets (organic odour).		
0.50	SV 27kPa		24,30,28/Av. 27.33	45.00	0.70	Firm grey mottled yellowish brown sandy slightly gravelly CLAY with low angular to subangular cobble content. Gravels are subangular to subrounded fine to coarse.		
1.00	B1				(1.10)			
			Slow to moderate ingress(1) at 1.80m.	43.90	1.80	Firm grey slightly sandy gravelly CLAY with medium angular to subangular cobble content. Gravels are angular to subangular fine to coarse.		▽1
2.00	B2				(0.35)			
				43.55	2.15	Grey to brown slightly sandy slightly clayey angular to subangular fine to coarse GRAVEL with medium angular to subangular cobble content.		
					(0.35)			
				43.20	2.50	Complete at 2.50m		

Plan

Remarks

Groundwater encountered at 1.80m BGL with slow to moderate ingress.
Trial pit sidewalls spalling and collapsing below 1.20m BGL.
Trial pit terminated at 2.50m BGL due to obstriction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP03

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Site Lands South of Birr			**Trial Pit Number** TP04
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.60 x 0.75 x 3.80m (L x W x D)	**Ground Level (mOD)** 46.67	**Client** RWE	**Job Number** 13919-06-24
	Location 603421.9 E 698983.6 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Very soft dark brown PEAT with rootlets.		
				46.47	0.20	Very soft brown PEAT with rootlets.		
0.50	SV 14kPa		14,16,12/Av. 14.00					
1.00	SV 13kPa		14,12,14/Av. 13.33					
1.00	B1				(2.20)			
2.10	B2							
				44.27	2.40	Very soft brown PEAT.		
					(1.40)			
			Slow ingress(1) at 3.70m.					▽1
				42.87	3.80	Complete at 3.80m		

Plan

Remarks

Groundwater encountered at 3.70m BGL with slow ingress.
Trial pit sidewalls collapsing below 1.50m BGL.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP04

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Site Lands South of Birr			**Trial Pit Number** TP05
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.80 x 0.70 x 3.65m (L x W x D)	**Ground Level (mOD)** 53.07	**Client** RWE	**Job Number** 13919-06-24
	Location 603496.9 E 698398.9 N	**Dates** 31/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15)	TOPSOIL: Brown slightly sandy slightly gravelly Clay with tree roots and rootlets.		
				52.92	0.15			
						Firm brown slightly sandy slightly gravelly CLAY with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
					(0.70)			
				52.22	0.85			
1.00	B1					Greyish brown slightly clayey slightly gravelly SAND with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
					(1.75)			
2.10	B2							
				50.47	2.60			▽1
			Slow ingress(1) at 2.60m.			Brownish grey to blue slightly silty slightly sandy angular to subangular fine to coarse GRAVEL with low subrounded cobble content.		
			Slow ingress(2) at 2.80m.					▽2
					(0.50)			
				49.97	3.10			
						Greyish brown slightly silty slightly clayey subangular to subrounded fine to coarse GRAVEL with low subrounded to rounded cobble content.		▽3
			Slow ingress(3) at 3.30m.					
					(0.55)			
				49.42	3.65			
						Complete at 3.65m		

Plan

Remarks

Groundwater encountered at 2.60m, 2.80m and 3.30m BGL with slow ingress.
Trial pit sidewalls spalling and collapsing below 2.60m BGL.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP05

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Site Lands South of Birr			**Trial Pit Number** TP06
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.20 x 0.70 x 2.90m (L x W x D)	**Ground Level (mOD)** 63.82	**Client** RWE	**Job Number** 13919-06-24
	Location 603554.4 E 697871.7 N	**Dates** 31/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	TOPSOIL: Brown slightly sandy slightly gravelly Clay with rootlets.		
				63.57	0.25			
					(0.30)	Firm brown slightly sandy slightly gravelly CLAY with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
				63.27	0.55			
1.00	B1					Greyish brown slightly clayey slightly gravelly SAND with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
					(2.35)			
2.00	B2							
				60.92	2.90			
						Complete at 2.90m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated at 2.90m due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP06

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Site Lands South of Birr			**Trial Pit Number** TP07
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.10 x 1.00 x 2.80m (L x W x D)	**Ground Level (mOD)** 54.93	**Client** RWE	**Job Number** 13919-06-24
	Location 603942.7 E 697611 N	**Dates** 30/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	TOPSOIL: Brown slightly sandy slightly gravelly Clay with rootlets.		
				54.63	0.30	Firm reddish brown slightly sandy slightly gravelly CLAY with low subrounded cobble content. Gravels are subrounded to rounded fine to coarse.		
					(0.50)			
				54.13	0.80	Greyish brown slightly clayey slightly gravelly SAND with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
1.00	B1							
					(2.00)			
2.00	B2							
				52.13	2.80	Complete at 2.80m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated at 2.80m due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP07

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Site Lands South of Birr			**Trial Pit Number** TP08
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.30 x 1.30 x 3.70m (L x W x D)	**Ground Level (mOD)** 44.38	**Client** RWE	**Job Number** 13919-06-24
	Location 604562.6 E 697652.6 N	**Dates** 30/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Very soft black PEAT with rootlets.		
				43.98	0.40			
0.50	SV 26kPa		24,24,30/Av. 26.00			Very soft brown PEAT (organic odour).		
1.00	SV 36kPa		32,42,34/Av. 36.00					
1.00	B1				(1.70)			
				42.28	2.10			
2.20	B2					Soft light grey to cream slightly peaty SILT (organic odour and damp).		
					(1.00)			
				41.28	3.10			
3.20	B3		Slow ingress(1) at 3.20m.			Soft grey slightly sandy SILT. (damp)		▽1
					(0.60)			
				40.68	3.70			
						Complete at 3.70m		

Plan

Remarks

Groundwater encountered at 3.20m BGL with slow ingress.
Trial pit sidewalls collapsing.
Trial pit terminated at 3.70m due to sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP08

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Site Lands South of Birr			**Trial Pit Number** TP09
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 1.80 x 1.30 x 3.70m (L x W x D)	**Ground Level (mOD)** 45.37	**Client** RWE	**Job Number** 13919-06-24
	Location 604814.6 E 697273.5 N	**Dates** 30/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						Very soft black PEAT with rootlets (organic odour).		
0.50	SV 27.33kPa		30,26,26/Av. 27.33		(1.20)			
1.00	SV 32kPa		32,28,36/Av. 32.00					
1.00	B1			44.17	1.20			
						Very soft brown PEAT (organic odour).		
2.00	B2				(1.50)			
				42.67	2.70			
						Soft light grey to white slightly peaty SILT.		
					(1.00)			
			Slow ingress(1) at 3.70m.	41.67	3.70			▽1
						Complete at 3.70m		

Plan

Remarks

Groundwater encountered at 3.70m BGL with slow ingress.
Trial pit sidewalls spalling and collapsing below 3.50m BGL.
Trial pit terminated at 3.70m due to side wall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP09

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Site Lands South of Birr			**Trial Pit Number** TP10
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.20 x 1.20 x 3.00m (L x W x D)	**Ground Level (mOD)** 49.46	**Client** RWE	**Job Number** 13919-06-24
	Location 604588.3 E 696575.9 N	**Dates** 30/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Brown slightly sandy slightly gravelly Clay with rootlets.		
				49.26	0.20			
					(0.20)	Medium dense greyish brown mottled orangeish brown slightly clayey slightly gravelly SAND with low angular to subangular cobble content. Gravels are subangular to subrounded fine to coarse.		
				49.06	0.40			
1.00	B1					Greyish brown slightly clayey slightly gravelly SAND with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
					(2.60)			
2.00	B2							
				46.46	3.00	Complete at 3.00m		

Plan

Remarks

No groundwater encountered.
Trial pit sidewalls spalling and collapsing below 2.60m BGL.
Trial pit terminated at 3.00m due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP10

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Site Lands South of Birr			**Trial Pit Number** TP11
Machine : 16t Excavator **Method :** Trial Pit	**Dimensions** 2.90 x 1.00 x 3.00m (L x W x D)	**Ground Level (mOD)** 48.36	**Client** RWE	**Job Number** 13919-06-24
	Location 604908.8 E 696271.8 N	**Dates** 30/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.50)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with low angular to subangular cobble content. Gravels are subangular to subrounded fine to coarse. (ploughed land)		
				47.86	0.50	Firm greyish brown slightly sandy slightly gravelly CLAY with low angular to subangular cobble content. Gravels are angular to subangular fine to coarse.		
1.00	B1				(1.40)			
				46.46	1.90	Soft to firm grey mottled brown slightly sandy slightly gravelly CLAY with low angular to subangular cobble content. Gravels are angular to subangular fine to coarse.		
2.00	B2				(1.10)			
			Moderate ingress(1) at 3.00m.	45.36	3.00	Complete at 3.00m		▽1

Plan

Remarks

Groundwater encountered at 3.00m BGL with moderate ingress.
Trial pit sidewalls spalling and collapsing below 1.70m BGL.
Trial pit terminated at 3.00m due to groundwater ingress and sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP11

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Site Lands South of Birr			**Trial Pit Number** TP12
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.10 x 1.30 x 3.50m (L x W x D)	**Ground Level (mOD)** 45.64	**Client** RWE	**Job Number** 13919-06-24
	Location 604416.9 E 697177.8 N	**Dates** 30/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.90)	Very soft black organic PEAT with rootlets.		
0.50	SV 22.33kPa		19,28,20/Av. 22.33					
0.90	SV 21.33kPa		18,18,28/Av. 21.33	44.74	0.90			
1.00	B1					Soft to firm grey sandy gravelly CLAY with low subangular cobble and boulder content. Gravels are angular to subangular fine to coarse.		
					(0.60)			
			Slow ingress(1) at 1.50m.	44.14	1.50			▽1
2.00	B2					Soft to firm grey mottled pinkish brown sandy gravelly CLAY with low subangular cobble and boulder content. Gravels are angular to subangular fine to coarse.		
					(2.00)			
				42.14	3.50	Complete at 3.50m		

Plan

Remarks

Groundwater encountered at 1.50m BGL with slow ingress.
Trial pit sidewalls spalling and collapsing below 3.20m BGL.
Trial pit terminated at 3.50m due to groundwater ingress and sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP12

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Site Lands South of Birr			**Trial Pit Number** TP14
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.10 x 1.30 x 2.40m (L x W x D)	**Ground Level (mOD)** 46.23	**Client** RWE	**Job Number** 13919-06-24
	Location 603136.2 E 699798.1 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	TOPSOIL: Brown slightly sandy slightly gravelly Clay with rootlets.		
				45.93	0.30	Grey slightly clayey slightly sandy subrounded to rounded fine to coarse GRAVEL with low subrounded to rounded cobble content. (Damp)		
1.00	B1		Slow ingress(1) at 1.30m.		(1.50)			▽1
				44.43	1.80	Grey slightly clayey sandy subrounded to rounded fine to coarse GRAVEL with low subrounded to rounded cobble and boulder content. (Wet)		
2.00	B2				(0.60)			
				43.83	2.40	Complete at 2.40m		

Plan

Remarks

Groundwater encountered at 1.30m BGL with slow ingress.
Trial pit sidewalls collapsing.
Trial pit terminated due to sidewall collapse and groundwater ingress.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP14

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Site Lands South of Birr			**Trial Pit Number** TP15
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.30 x 1.20 x 2.70m (L x W x D)	**Ground Level (mOD)** 45.83	**Client** RWE	**Job Number** 13919-06-24
	Location 603088.9 E 699944.9 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				45.73	(0.10) 0.10	TOPSOIL: Black Peat with rootlets.		
						Very soft black fibrous PEAT.		
					(0.50)			
0.50	SV 18.67kPa		18,24,14/Av. 18.67	45.23	0.60	Soft to firm grey slightly gravelly slightly sandy CLAY with low subrounded to rounded cobble content. Gravels are subangular fine to coarse.		
					(0.70)			
1.00	B1			44.53	1.30	Grey slightly clayey slightly sandy subangular medium to coarse GRAVEL with medium subrounded to rounded cobble and low subrounded to rounded boulder content.		
					(1.00)			
2.10	B2							
			Moderate ingress(1) at 2.40m.	43.53	2.30	Grey slightly clayey slightly sandy subangular medium to coarse GRAVEL with medium subrounded to rounded cobble and boulder content.		▽1
					(0.40)			
				43.13	2.70	Complete at 2.70m		

Plan

Remarks

Groundwater encountered at 2.40m BGL with moderate ingress.
Trial pit sidewalls collapsing.
Trial pit terminated due to sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP15

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Site Lands South of Birr			**Trial Pit Number** TP16
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.20 x 1.00 x 3.90m (L x W x D)	**Ground Level (mOD)** 45.84	**Client** RWE	**Job Number** 13919-06-24
	Location 602783.6 E 699958.1 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Very soft brown PEAT with medium organic content and rootlets.		
				45.54	0.30	Very soft black fibrous PEAT with medium organic content.		
0.50	SV 19.33kPa		18,18,22/Av. 19.33					
1.00	SV 22kPa		18,22,26/Av. 22.00					
1.00	B1				(2.10)			
2.00	B2							
				43.44	2.40	Soft grey slightly clayey SILT.		
					(1.10)			
				42.34	3.50	Grey slightly clayey slightly sandy subangular medium to coarse GRAVEL with medium subrounded to rounded cobble content.		
					(0.40)			
				41.94	3.90	Complete at 3.90m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP16

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Site Lands South of Birr			**Trial Pit Number** TP17
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.20 x 1.00 x 2.90m (L x W x D)	**Ground Level (mOD)** 45.79	**Client** RWE	**Job Number** 13919-06-24
	Location 602918.9 E 699981.9 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				45.69	(0.10) 0.10	TOPSOIL: Black fibrous slightly clayey Peat with rootlets.		
						Very soft black fibrous PEAT with medium organic content and tree roots.		
0.50	SV 23.33kPa		24,28,18/Av. 23.33		(0.60)			
				45.09	0.70	Soft grey slightly clayey SILT.		
1.00	B1				(1.20)			
				43.89	1.90	Greyish brown slightly clayey slightly sandy subrounded to rounded fine to coarse GRAVEL with medium rounded cobble and low subangular boulder content. (Damp)		
2.00	B2							
			Slow ingress(1) at 2.40m.		(1.00)			▽1
				42.89	2.90	Complete at 2.90m		

Plan

Remarks

Groundwater encountered at 2.40m BGL with slow ingress.
Trial pit sidewalls collapsing below 1.90m BGL.
Trial pit terminated due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP17

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Site Lands South of Birr			**Trial Pit Number** TP18
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 5.00 x 1.90 x 2.70m (L x W x D)	**Ground Level (mOD)** 46.57	**Client** RWE	**Job Number** 13919-06-24
	Location 602524.9 E 700267.7 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Dark brown slightly peaty Clay with rootlets.		
				46.37	0.20	Firm blueish grey slightly sandy slightly gravelly CLAY with low subangular cobble content. Gravels are subangular to subrounded fine to coarse.		
1.10	B1				(1.20)			
				45.17	1.40	Firm blueish grey slightly sandy slightly gravelly CLAY with medium subrounded to rounded cobble and low subrounded boulder content.		
					(0.50)			
			Slow ingress(1) at 1.90m.	44.67	1.90	WEATHERED BEDROCK: Recovered as dark grey to black slightly clayey slightly sandy angular to subangular fine to coarse GRAVEL with low angular to subangular cobble and boulder content.		▽1
2.00	B2				(0.80)			
			Seeping(2) at 2.50m.					▽2
				43.87	2.70	Complete at 2.70m		

Plan

Remarks

Groundwater encountered at 1.90m BGL with slow ingress, seeping at 2.50m BGL.
Trial pit sidewalls collapsing below 1.40m BGL.
Trial pit terminated due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP18

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Site Lands South of Birr			**Trial Pit Number** TP19
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.00 x 0.80 x 3.90m (L x W x D)	**Ground Level (mOD)** 46.29	**Client** RWE	**Job Number** 13919-06-24
	Location 603344.6 E 698835.8 N	**Dates** 31/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	MADE GROUND: Dark brown Peat with rare fragments of plastic.		
				46.04	0.25	Very soft dark brown PEAT with rootlets.		
0.50	SV 14.67kPa		12,16,16/Av. 14.67		(0.50)			
				45.54	0.75	Very soft dark brown fibrous PEAT.		
1.00	SV 26kPa		20,28,30/Av. 26.00					
1.00	B1		Slow ingress(1) at 1.10m.		(0.75)			▽1
				44.79	1.50	Very soft dark brown PEAT.		
2.00	B2				(1.60)			
				43.19	3.10	Firm grey slightly clayey SILT.		
			Moderate ingress(2) at 3.30m.		(0.50)			▽2
				42.69	3.60	Firm grey clayey SILT.		
					(0.30)			
				42.39	3.90	Complete at 3.90m		

Plan

Remarks

Groundwater encountered at 1.10m amd 3.30m BGL with slow ingress.
Trial pit stable.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP19

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Site Lands South of Birr			**Trial Pit Number** TP20
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.60 x 0.80 x 3.60m (L x W x D)	**Ground Level (mOD)** 45.27	**Client** RWE	**Job Number** 13919-06-24
	Location 603027.5 E 699114.2 N	**Dates** 31/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Very soft brown PEAT with rootlets. (Organic odour)		
				44.87	0.40			
0.50	SV 16kPa		12,22,14/Av. 16.00		(0.70)	Very soft black PEAT. (Organic odour)		
1.00	SV 18.67kPa		18,10,28/Av. 18.67	44.17	1.10			▽1
1.00	B1		Slow ingress(1) at 1.10m.			Soft to firm grey SILT with organic fibres.		
					(1.00)			
2.00	B2			43.17	2.10			
					(0.80)	Firm to stiff grey silty CLAY with organic fibres.		▽2
			Moderate ingress(2) at 2.80m.	42.37	2.90			
					(0.70)	Firm to stiff grey slightly sandy slightly gravelly CLAY with low angular to subangular cobble content. Gravels are angular to subangular fine to coarse.		
				41.67	3.60			
						Complete at 3.60m		

Plan

Remarks

Groundwater encountered at 1.10m BGL with slow ingress and 2.80m BGL with moderate ingress.
Trial pit stable.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP20

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Site Lands South of Birr			**Trial Pit Number** TP21
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 3.40 x 1.50 x 3.00m (L x W x D)	**Ground Level (mOD)** 45.13	**Client** RWE	**Job Number** 13919-06-24
	Location 603093.3 E 699610.2 N	**Dates** 01/08/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Dark brown slightly sandy slightly gravelly Clay with rootlets.		
				44.93	0.20			
					(0.70)	Soft to firm grey sandy gravelly CLAY with low subrounded to rounded cobble content. Gravels are subangular fine to coarse.		
				44.23	0.90			
1.00	B1				(1.20)	Soft to firm grey sandy slightly gravelly CLAY with low subrounded to rounded cobble content. Gravels are subangular fine to coarse.		
2.00	B2			43.03	2.10			
			Slow ingress(1) at 2.40m.		(0.90)	Greyish brown slightly clayey sandy subangular to subrounded fine to coarse GRAVEL with low subangular cobble content.		▽1
				42.13	3.00			
						Complete at 3.00m		

Plan

Remarks

Groundwater encountered at 2.40m BGL with slow ingress.
Trial pit sidewalls collapsing.
Trial pit terminated due to sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP21

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Site Lands South of Birr			**Trial Pit Number** TP22
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.20 x 0.70 x 2.70m (L x W x D)	**Ground Level (mOD)** 60.97	**Client** RWE	**Job Number** 13919-06-24
	Location 603639.2 E 697593.9 N	**Dates** 31/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	TOPSOIL: Brown slightly sandy slightly gravelly Clay with rootlets.		
				60.72	0.25	Firm brown slightly sandy slightly gravelly CLAY with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
1.00	B1				(1.85)			
2.00	B2			58.87	2.10	Firm greyish brown sandy gravelly CLAY with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
					(0.60)			
				58.27	2.70	Complete at 2.70m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated at 2.70m due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP22

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Site Lands South of Birr			**Trial Pit Number** TP23
Machine : 8t Excavator **Method :** Trial Pit	**Dimensions** 2.10 x 0.70 x 3.20m (L x W x D)	**Ground Level (mOD)** 64.18	**Client** RWE	**Job Number** 13919-06-24
	Location 603655.8 E 697807.8 N	**Dates** 31/07/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				64.03	(0.15) 0.15	TOPSOIL: Brown slightly sandy slightly gravelly Clay with rootlets.		
						Firm brown slightly sandy slightly gravelly CLAY with low subrounded cobble content. Gravels are subrounded to rounded fine to coarse.		
					(0.60)			
				63.43	0.75	Greyish brown slightly clayey slightly gravelly SAND with low subrounded to rounded cobble content. Gravels are surounded to rounded fine to coarse.		
1.00	B1							
					(1.45)			
2.00	B2							
				61.98	2.20	Greyish brown slightly clayey gravelly SAND with low subrounded to rounded cobble and boulder content. Gravels are subrounded to rounded fine to coarse.		
					(1.00)			
				60.98	3.20	Complete at 3.20m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated at 3.10m due to obstruction; possible boulders or bedrock.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	13919-06-24.TP23

Ballincor Wind Farm – Trial Pit Photographs

TP01

TP01

Ballincor Wind Farm – Trial Pit Photographs

TP01

TP01

Ballincor Wind Farm – Trial Pit Photographs

TP01A

TP01A

Ballincor Wind Farm – Trial Pit Photographs

TP01A

TP01A

Ballincor Wind Farm – Trial Pit Photographs

TP02

TP02

Ballincor Wind Farm – Trial Pit Photographs

TP02

TP02

Ballincor Wind Farm – Trial Pit Photographs

TP03

TP03

Ballincor Wind Farm – Trial Pit Photographs

TP03

TP03

Ballincor Wind Farm – Trial Pit Photographs

TP04

TP04

Ballincor Wind Farm – Trial Pit Photographs

TP04

TP04

Ballincor Wind Farm – Trial Pit Photographs

TP05

TP05

Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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Ballincor Wind Farm – Trial Pit Photographs

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TP23

Ballincor Wind Farm – Trial Pit Photographs

TP23

TP23

APPENDIX 3 – Rotary Borehole Records

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Site Lands South of Birr			**Borehole Number** BH02
Machine : Beretta T44 **Flush :** Water **Core Dia:** 63.5 mm **Method :** Rotary Cored	**Casing Diameter** 96mm cased to 18.80m	**Ground Level (mOD)** 45.34	**Client** RWE	**Job Number** 13919-06-24
	Location (dGPS) 604819.1 E 697269.2 N	**Dates** 18/09/2024-19/09/2024	**Engineer** Tobin	**Sheet** 1/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00										
	9						(2.30)	Recovery consists of dark brown spongy pseudo-fibrous PEAT with grass and wood. Drillers notes: TOPSOIL onto brown Peat (very soft).		
2.30 2.30-2.75	80				0,0/0,0,0,0 SPT N=0	43.04	2.30 (1.35)	Very soft beige slightly sandy clayey SILT. Sand is fine to medium.		
3.80 3.80-4.25	83				0,0/0,0,0,0 SPT N=0	41.69	3.65 (1.00)	Very soft grey slightly sandy silty CLAY. Sand is fine to medium.		
						40.69	4.65 (0.65)	Very soft beige slightly sandy clayey SILT with occasional rootlets.		
5.30 5.30-5.75	90				0,0/0,0,0,0 SPT N=0	40.04	5.30 (1.50)	Very soft laminated grey slightly sandy silty CLAY. Sand is fine to medium.		
6.80 6.80-7.25	100				0,0/0,0,0,0 SPT N=0	38.54	6.80 (1.00)	Very soft greyish brown slightly sandy silty CLAY. Sand is fine to medium.		
						37.54	7.80 (0.40)	Very soft light grey slightly sandy silty CLAY. Sand is fine to medium.		
8.30 8.30-8.75	83				0,0/0,0,0,0 SPT N=0	37.14	8.20	Very soft brown laminated very slightly sandy silty CLAY. Sand is fine to medium		
9.80 9.80-10.25					0,0/0,0,0,0 SPT N=0					

Remarks
Unable to determine Groundwater strikes due to drilling techniques used.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:50	EM

Figure No. 13919-06-24.BH02

Ground Investigations Ireland Ltd
www.gii.ie

Site Lands South of Birr			**Borehole Number** BH02
Machine : Beretta T44 **Flush :** Water **Core Dia :** 63.5 mm **Method :** Rotary Cored	**Casing Diameter** 96mm cased to 18.80m	**Ground Level (mOD)** 45.34	**Client** RWE	**Job Number** 13919-06-24
	Location (dGPS) 604819.1 E 697269.2 N	**Dates** 18/09/2024-19/09/2024	**Engineer** Tobin	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	90						(4.60)			
11.30 11.30-11.75	97				0,0/0,0,0,0 SPT N=0					
12.80 12.80-13.25	40				1,0/0,3,2,2 SPT N=7	32.54	12.80 (1.50)	Recovery consists of grey sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to medium. Drillers notes: Grey sandy silty Gravel (very soft to firm).		
14.30 14.30-14.75	20				0,1/1,0,0,0 SPT N=1	31.04	14.30 (1.50)	Recovery consists of grey sandy subangular to subrounded fine to coarse GRAVEL with low cobble content. Drillers notes: grey SANDS with gravel and cobbles (very loose).		
15.80 15.80-16.10	17				3,3/20,24,6 SPT 50/150	29.54	15.80 (3.00)	Recovery consists of grey sandy slightly clayey sub-angular to sub-rounded fine to coarse GRAVEL with low cobble content. Drillers notes: Grey Gravels and cobbles (Dense).		
17.80 17.80-18.25	30				10,15/10,10,0,0 SPT N=20					
18.80						26.54	18.80	Complete at 18.80m		

Remarks

Scale (approx)	Logged By
1:50	EM

Figure No. 13919-06-24.BH02

Ground Investigations Ireland Ltd
www.gii.ie

Site Lands South of Birr			**Borehole Number** BH03
Machine : Beretta T44 **Flush :** Water **Core Dia :** 63.5 mm **Method :** Rotary Cored	**Casing Diameter** 96mm cased to 12.00m	**Ground Level (mOD)** 46.70	**Client** RWE	**Job Number** 13919-06-24
	Location (dGPS) 603327.1 E 698870.9 N	**Dates** 16/09/2024-17/09/2024	**Engineer** Tobin	**Sheet** 1/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00										
	24						(2.30)	Recovery consists of brown fibrous PEAT. Drillers notes: Brown Peat.		
2.30 2.30-2.75	97				0,0/0,0,0,0 SPT N=0	44.40	2.30 (0.85)	Very soft dark brown spongy pseudo-fibrous PEAT.		
3.80 3.80-4.25	90				0,0/0,0,0,0 SPT N=0	43.55	3.15 (1.30)	Very soft laminated beige mottled grey clayey SILT with frequent organics.		
5.30 5.30-5.75	100				0,0/0,2,1,1 SPT N=4	42.25 41.40 40.90 40.60	4.45 (0.85) 5.30 (0.50) 5.80 (0.30) 6.10	Very soft laminated brownish grey very slightly sandy silty CLAY. Soft laminated brownish grey very slightly sandy silty CLAY. Soft to firm grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subrounded, fine to medium.		
6.80 6.80-7.25	67				3,4/4,5,5,10 SPT N=24	39.90	6.80 (0.70) (1.40)	Soft to firm grey mottled brown slightly sandy CLAY. Sand is fine to coarse. Stiff brownish grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse.		
8.30 8.30-8.45	53				25/50 SPT 25*/70 50/75	38.50	8.20	Recovery consists of grey clayey slightly sandy subangular to subrounded fine to coarse Gravel with medium cobble content. Drillers notes: Grey gravelly boulder CLAY (Very stiff / dense).		
9.80 9.80-9.98					19,6/50 50/75 SPT 25*/100					

Remarks
Unable to determine Groundwater due to drilling techniques used.
Boreholes backfilled upon completion.

Scale (approx)	Logged By
1:50	EM

Figure No. 13919-06-24.BH03

Ground Investigations Ireland Ltd
www.gii.ie

Site Lands South of Birr			**Borehole Number** BH03
Machine : Beretta T44 **Flush :** Water **Core Dia:** 63.5 mm **Method :** Rotary Cored	**Casing Diameter** 96mm cased to 12.00m	**Ground Level (mOD)** 46.70	**Client** RWE	**Job Number** 13919-06-24
	Location (dGPS) 603327.1 E 698870.9 N	**Dates** 16/09/2024-17/09/2024	**Engineer** Tobin	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	60						(3.80)			
11.30 11.30-11.45	100				25/50 SPT 25*/75 50/75					
12.00						34.70	12.00	Complete at 12.00m		

Remarks

Scale (approx)	Logged By
1:50	EM

Figure No. 13919-06-24.BH03

Ground Investigations Ireland Ltd
www.gii.ie

Site Lands South of Birr			**Borehole Number** BH04
Machine : Beretta T44 **Flush :** Water **Core Dia :** 63.5 mm **Method :** Rotary Cored	**Casing Diameter** 96mm cased to 6.80m	**Ground Level (mOD)** 63.69	**Client** RWE	**Job Number** 13919-06-24
	Location (dGPS) 603553 E 697880.3 N	**Dates** 17/09/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00										
	38						(2.00)	Recovery consists of brown slightly sandy gravelly CLAY with low cobble content. Drillers notes: brown clay.		
2.30						61.69	2.00			
2.30-2.58	37				13,12/25,25 SPT 25*/125 50/150		(1.80)	Recovery consists of brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse (very stiff).		
3.80						59.89	3.80			
3.80-3.95	37				25/50 SPT 25*/75 50/75		(2.40)	Recovery consists of light brownish cream slightly sandy gravelly CLAY with low cobble content. Drillers notes: sand and gravel onto lightly brown slightly gravelly Clay (very stiff).		
5.30						57.49	6.20			
5.30-5.45	60				25/50 SPT 25*/75 50/75		(0.60)	Very stiff brownish grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse.		
6.80						56.89	6.80	Complete at 6.80m		

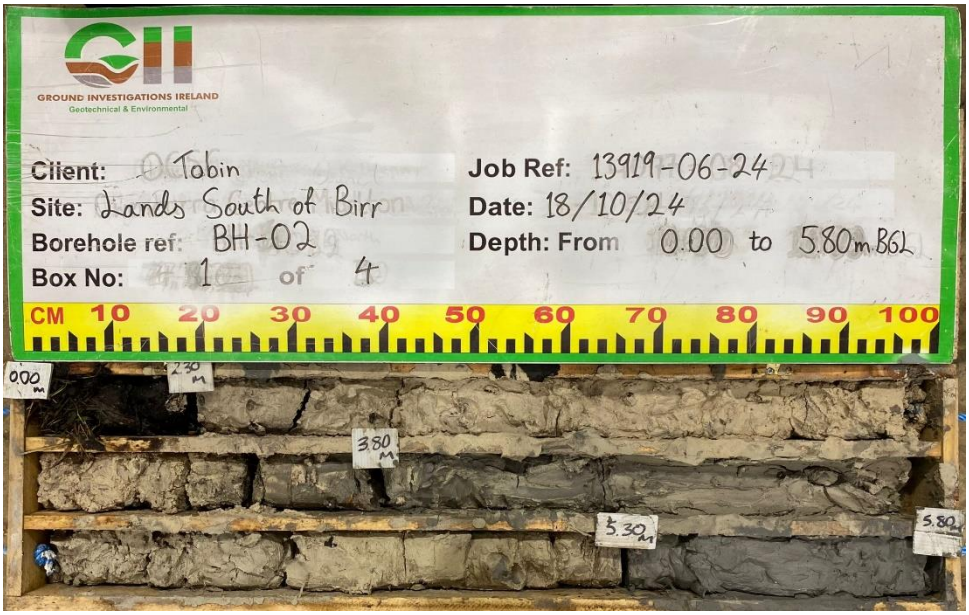
Remarks
Unable to determine Groundwater strikes due to drilling technique used.
Boreholes backfilled upon completion.

Scale (approx)	Logged By
1:50	EM

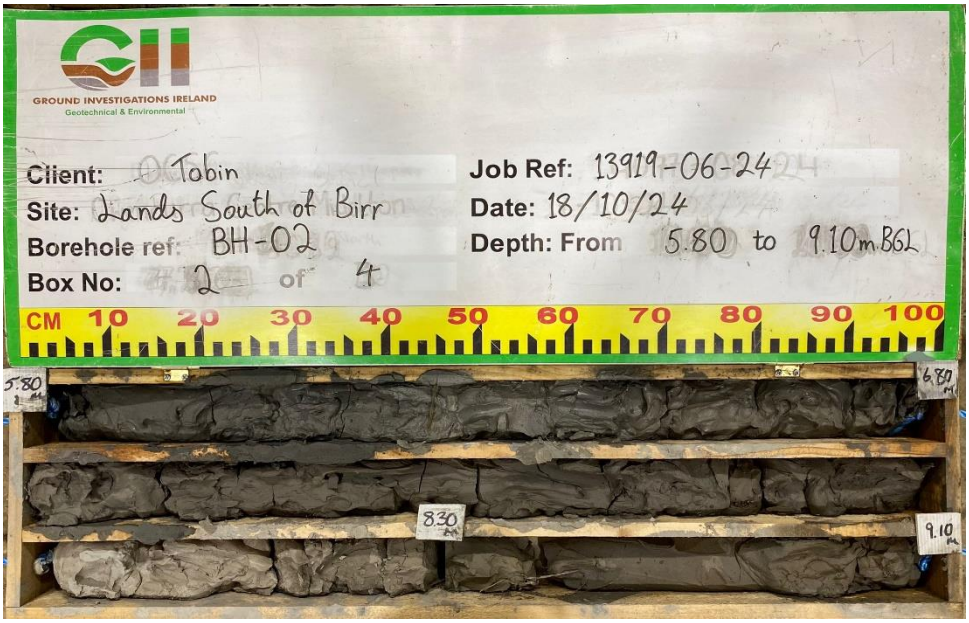
Figure No. 13919-06-24.BH04

Lands South of Birr – Rotary Core Photographs

BH02



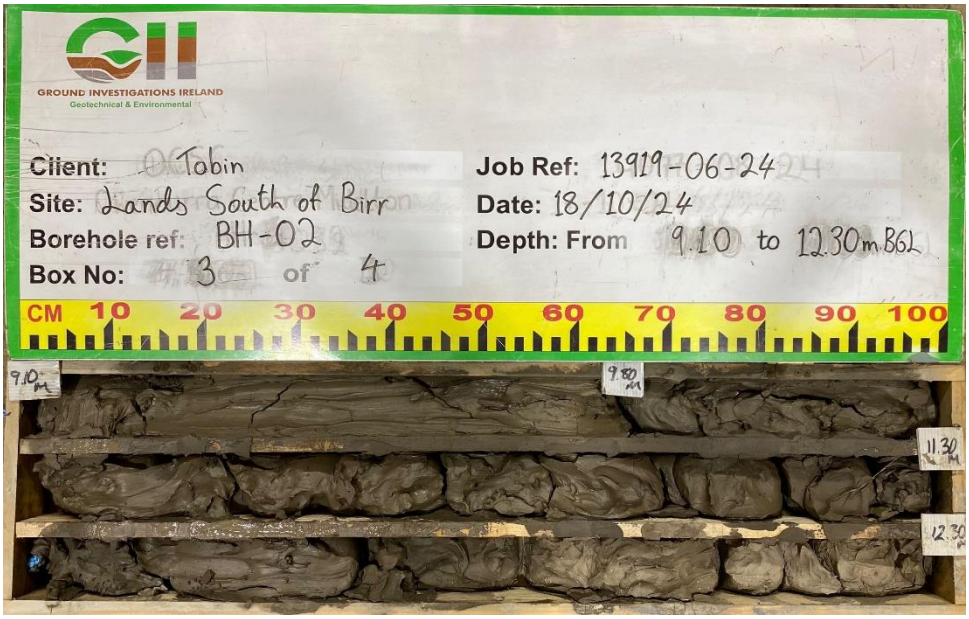
Box 1 (0.00 – 5.80m BGL)



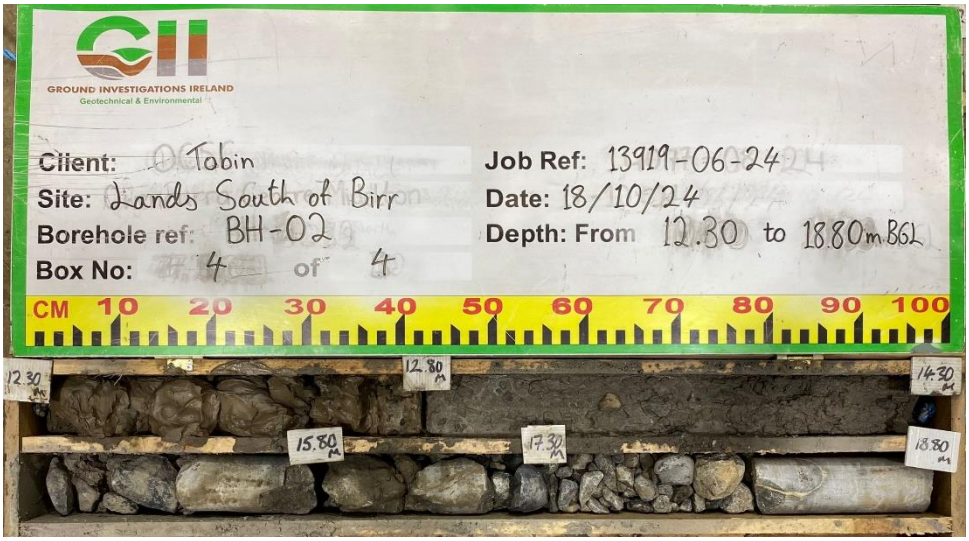
Box 2 (5.80 – 9.10m BGL)

Lands South of Birr – Rotary Core Photographs

BH02



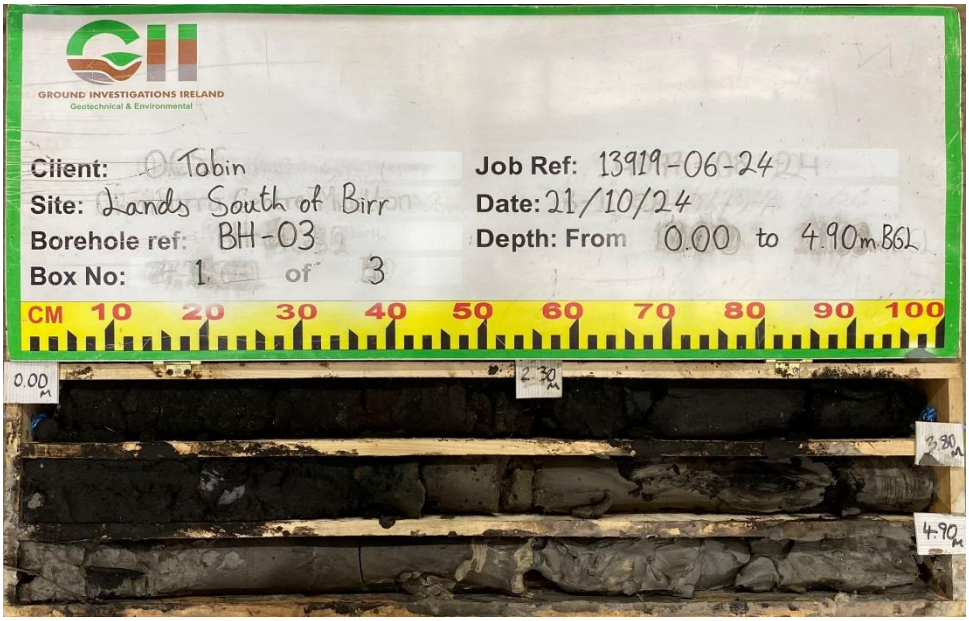
Box 3 (9.10 – 12.30m BGL)



Box 4 (12.30 – 18.80m BGL)

Lands South of Birr – Rotary Core Photographs

BH03

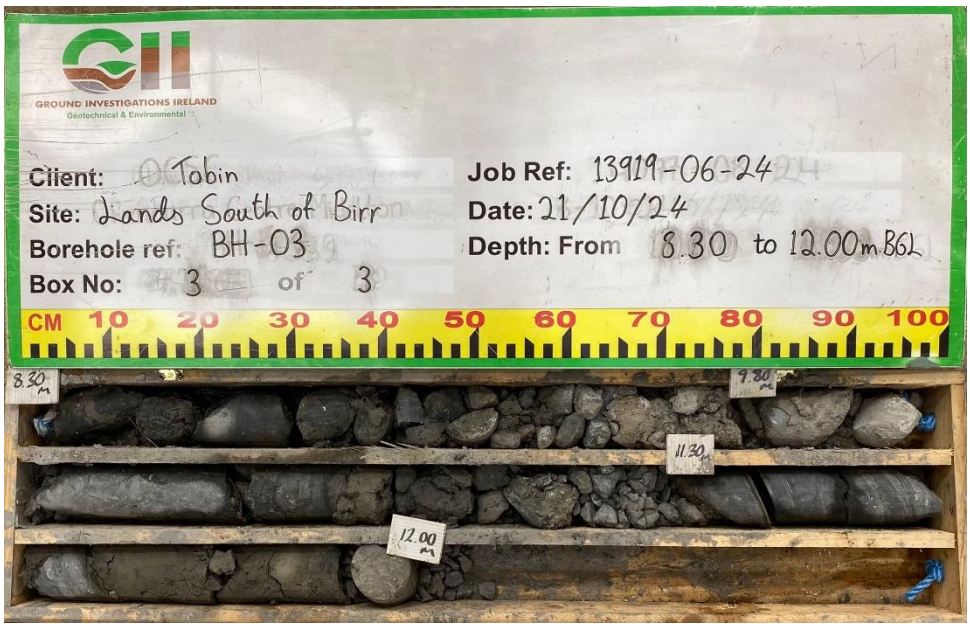


Box 1 (0.00 – 4.90m BGL)

Box 2 (4.90 – 8.30m BGL)

Lands South of Birr – Rotary Core Photographs

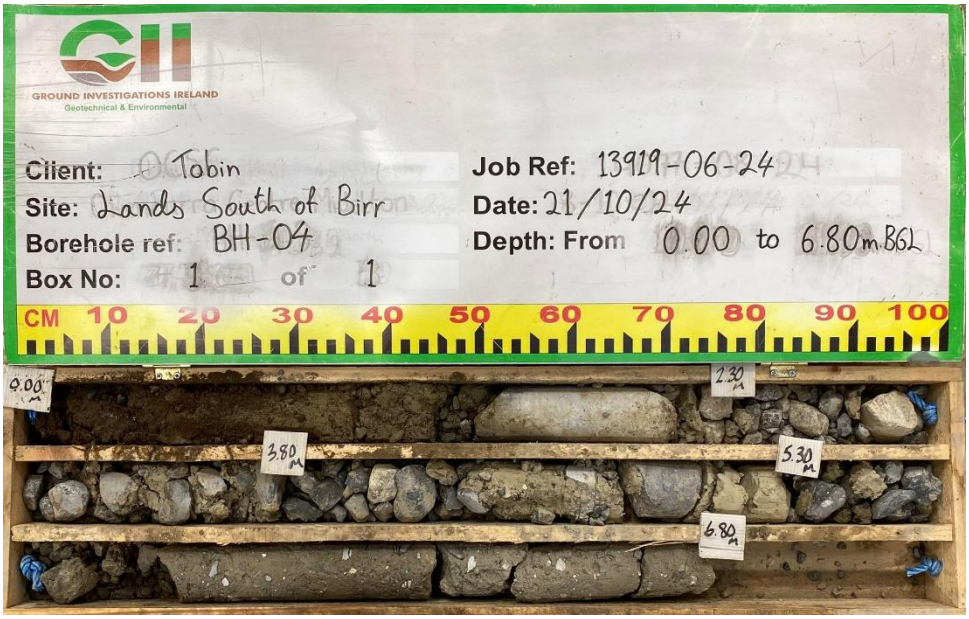
BH03



Box 3 (8.30 – 12.00m BGL)

Lands South of Birr – Rotary Core Photographs

BH04



Box 1 (0.00 – 6.80m BGL)

APPENDIX 4 – Laboratory Testing

LABORATORY REPORT

Contract Number: PSL24/8756

Report Date: 03 January 2025

Client's Reference: 13919-06-24

Client Name: Ground Investigations Ireland Ltd
Catherinestown House
Hazelhatch Road
Newcastle
Co Dublin
D22 YD52

For the attention of: Scott Grayson

Contract Title: Lands South of Birr (Ballincor)

Date Received: 26/11/2024
Date Commenced: 26/11/2024
Date Completed: 3/1/2025

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

A Watkins (Managing Director)
R Berriman (Associate Director)
S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP01		B	1.00		Brown slightly sandy slightly gravelly CLAY.
TP01A		B	2.10		Grey very sandy GRAVEL with cobbles.
TP02		B	2.00		Brown mottled grey slightly sandy CLAY.
TP03		B	1.00		Brown slightly clayey gravelly SAND.
TP04		B	1.00		Dark brown PEAT.
TP04		B	2.00		Dark brown PEAT.
TP05		B	2.10		Grey clayey SAND & GRAVEL.
TP06		B	2.00		Brown slightly sandy gravelly SILT.
TP07		B	2.00		Grey slightly sandy gravelly SILT.
TP08		B	1.00		Dark brown PEAT.
TP08		B	2.20		Grey clayey organic SILT.
TP08		B	3.20		Brown mottled grey clayey slightly sandy organic SILT.
TP09		B	1.00		Dark brown PEAT.
TP09		B	2.00		Grey clayey organic SILT.
TP10		B	2.00		Brown silty very gravelly SAND.
TP11		B	2.00		Grey sandy slightly gravelly CLAY.
TP12		B	2.00		Brown sandy gravelly CLAY.
TP14		B	2.00		Dark grey silty sandy GRAVEL with cobbles.
TP16		B	1.00		Dark brown PEAT.

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP16		B	2.00		Dark brown PEAT.
TP17		B	1.00		Brown mottled grey CLAY.
TP18		B	1.10		Brown slightly sandy slightly gravelly CLAY.
TP19		B	1.00		Dark brown PEAT.
TP19		B	2.00		Dark brown PEAT.
TP20		B	1.00		Grey mottled brown slightly sandy CLAY.
TP20		B	2.00		Grey mottled brown slightly sandy CLAY.
TP21		B	1.00		Brown sandy gravelly CLAY.
TP22		B	2.00		Brown slightly sandy gravelly CLAY.
TP23		B	2.00		Brown slightly sandy slightly gravelly CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No:

PSL24/8756

Client Ref:

13919-06-24

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
TP01		B	1.00		20.7			46	21	25	99	Medium Plasticity CIM
TP02		B	2.00		18.3			36	18	18	100	Medium Plasticity CIM
TP03		B	1.00		5.1				NP			
TP04		B	1.00		937.9							
TP04		B	2.00		780.9							
TP08		B	1.00		722.6							
TP08		B	2.20		110.1							
TP08		B	3.20		54.4			79	38	41	100	Very High Plasticity SiV
TP09		B	1.00		644.1							
TP09		B	2.00		139.2							
TP10		B	2.00		7.8							
TP12		B	2.00		8.2							
TP14		B	2.00		4.5							
TP16		B	1.00		783.6							
TP16		B	2.00		945.5							

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

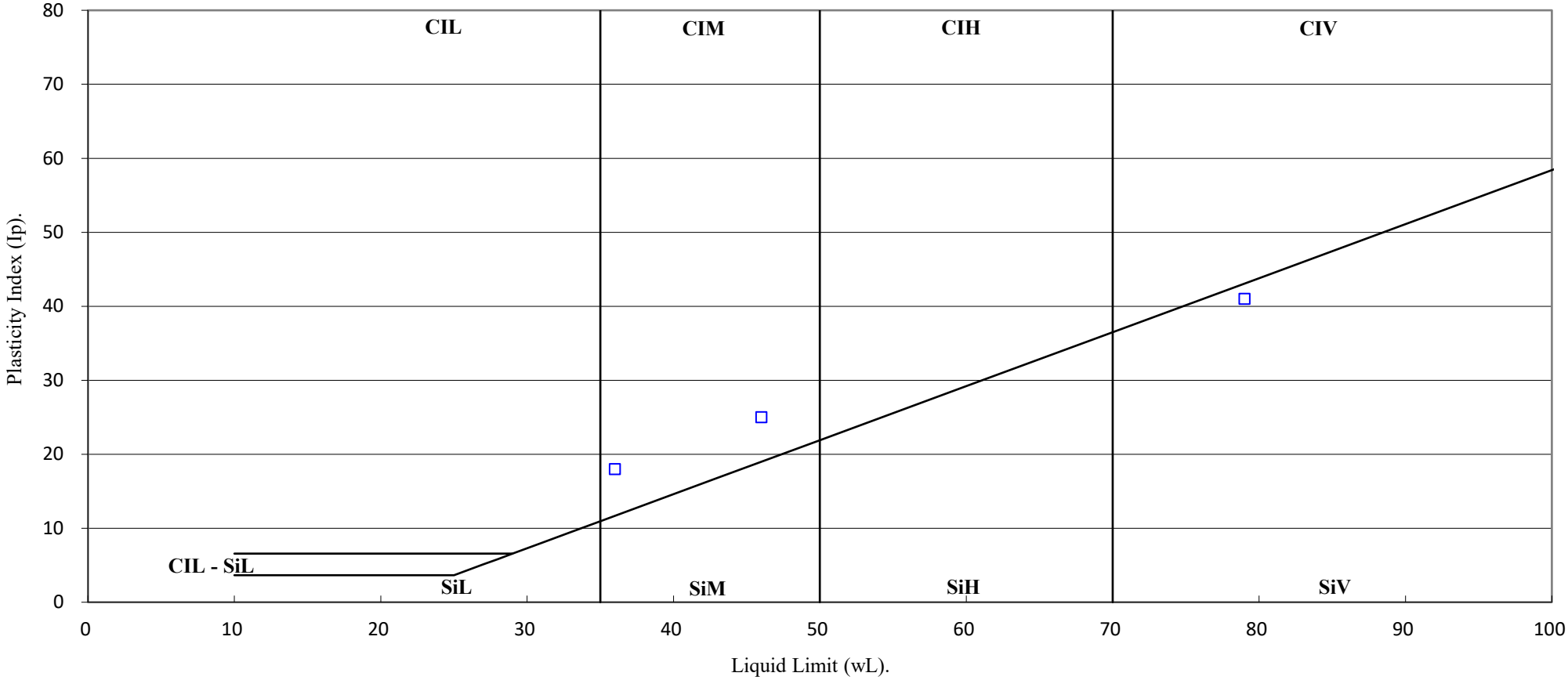
PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No:
PSL24/8756
Client Ref:
13919-06-24

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Lands South of Birr (Ballincor)**	**Contract No:** PSL24/8756 **Client Ref:** 13919-06-24

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
TP17		B	1.00		40.1							
TP18		B	1.10		16.0							
TP19		B	1.00		870.9							
TP19		B	2.00		766.4							
TP20		B	1.00		44.0							
TP20		B	2.00		19.0							
TP21		B	1.00		7.6							
TP22		B	2.00		8.1							
TP23		B	2.00		9.4							

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No:
PSL24/8756
Client Ref:
13919-06-24

PARTICLE SIZE DISTRIBUTION TEST

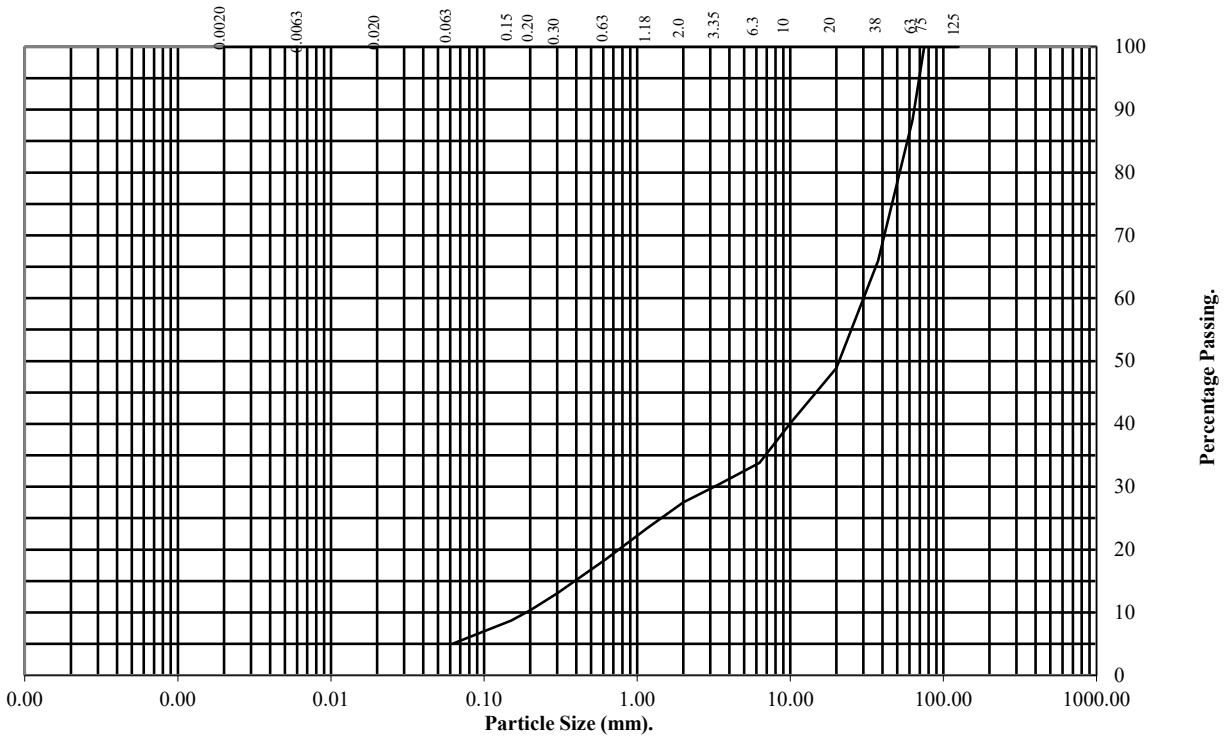
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: TP01A **Top Depth (m):** 2.10

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	88
37.5	66
20	49
10	40
6.3	34
3.35	30
2	28
1.18	24
0.63	19
0.3	13
0.2	10
0.15	9
0.063	5

Soil Fraction	Total Percentage
Cobbles	12
Gravel	60
Sand	23
Silt/Clay	5

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No: PSL24/8756

Client Ref: 13919-06-24

PARTICLE SIZE DISTRIBUTION TEST

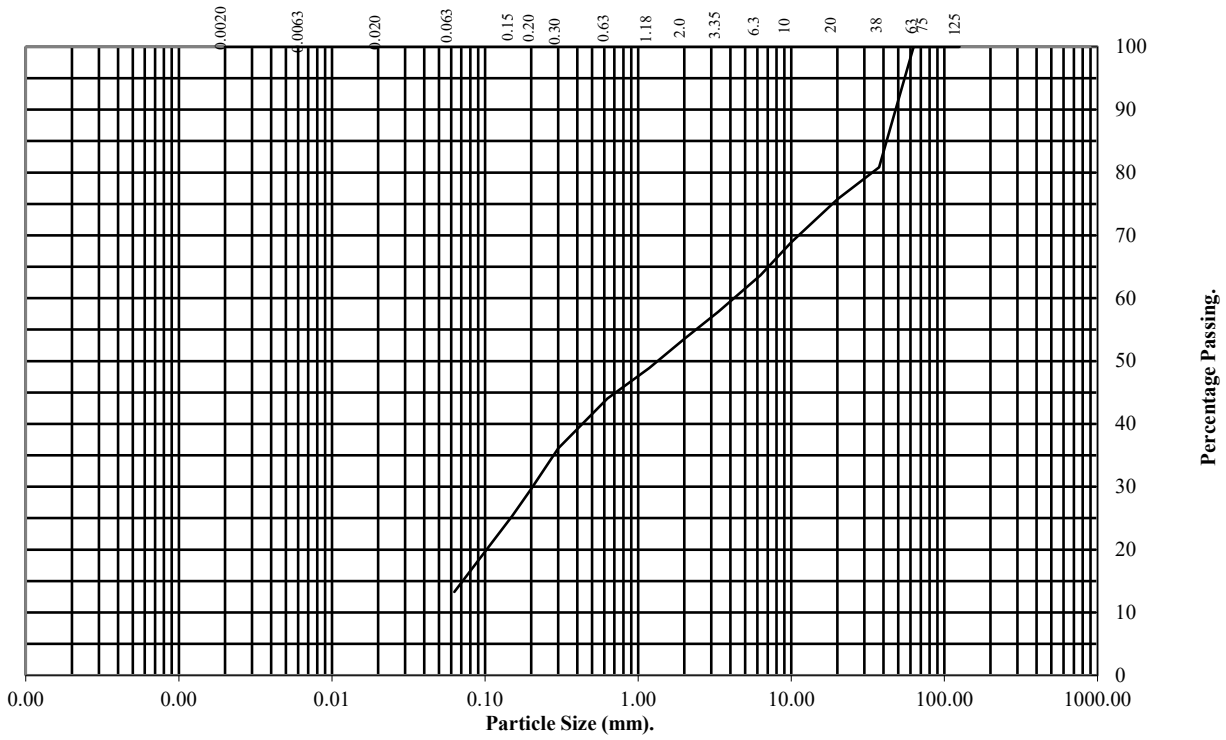
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: TP05 **Top Depth (m):** 2.10

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	81
20	76
10	69
6.3	64
3.35	58
2	54
1.18	49
0.63	44
0.3	36
0.2	30
0.15	25
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	46
Sand	41
Silt/Clay	13

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No: PSL24/8756

Client Ref: 13919-06-24

PARTICLE SIZE DISTRIBUTION TEST

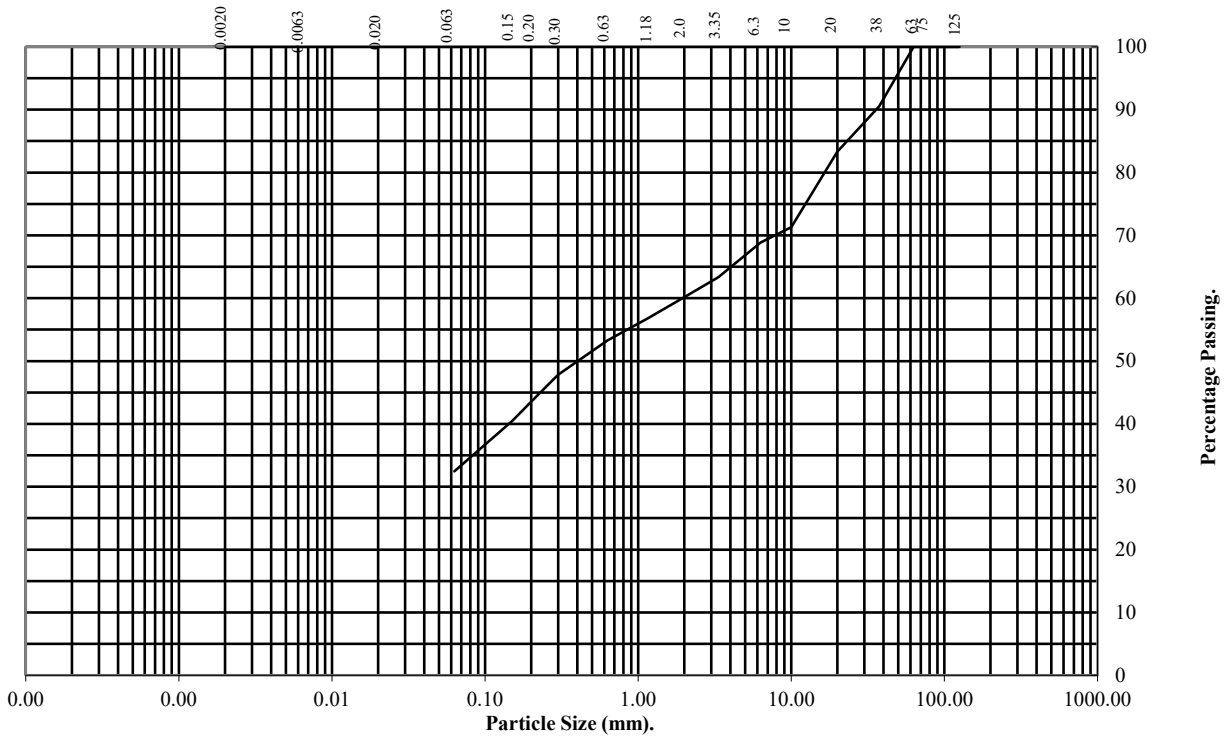
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: TP06 **Top Depth (m):** 2.00

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	90
20	83
10	71
6.3	69
3.35	63
2	60
1.18	57
0.63	53
0.3	48
0.2	44
0.15	40
0.063	32

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	28
Silt/Clay	32

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No: PSL24/8756

Client Ref: 13919-06-24

PARTICLE SIZE DISTRIBUTION TEST

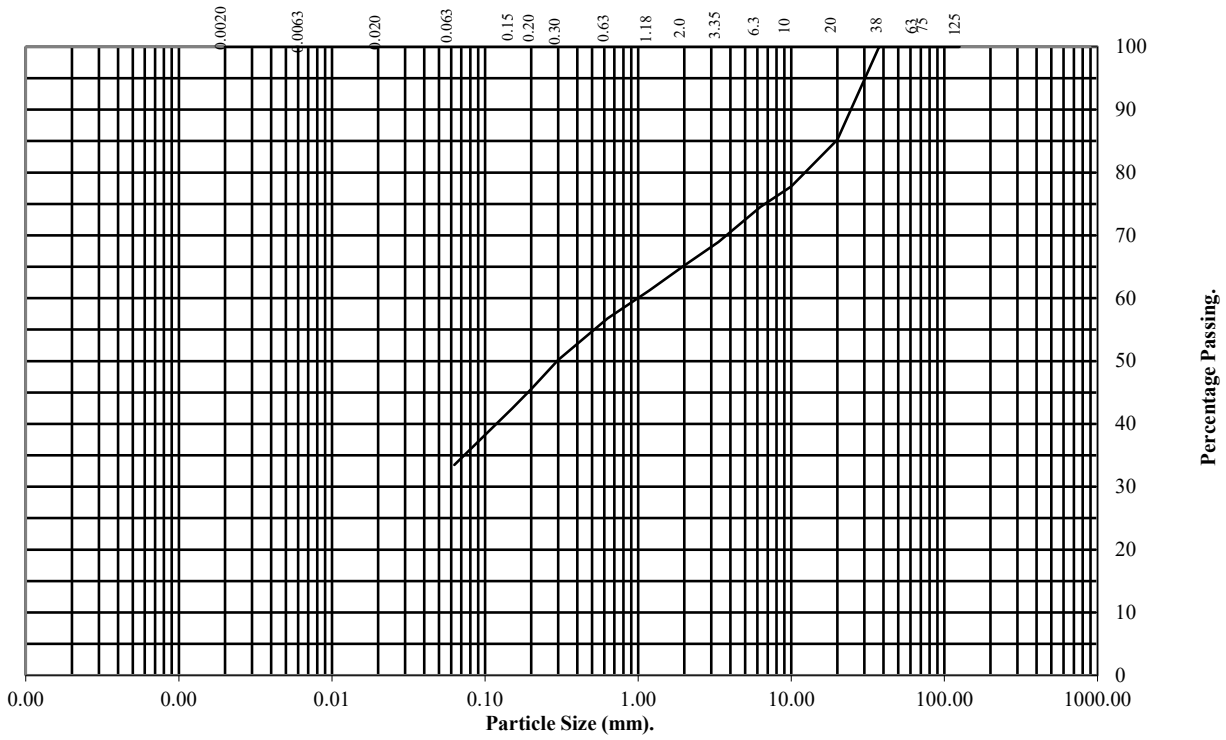
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: TP07 **Top Depth (m):** 2.00

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	85
10	78
6.3	75
3.35	69
2	65
1.18	61
0.63	57
0.3	50
0.2	46
0.15	42
0.063	33

Soil Fraction	Total Percentage
Cobbles	0
Gravel	35
Sand	32
Silt/Clay	33

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No: PSL24/8756

Client Ref: 13919-06-24

PARTICLE SIZE DISTRIBUTION TEST

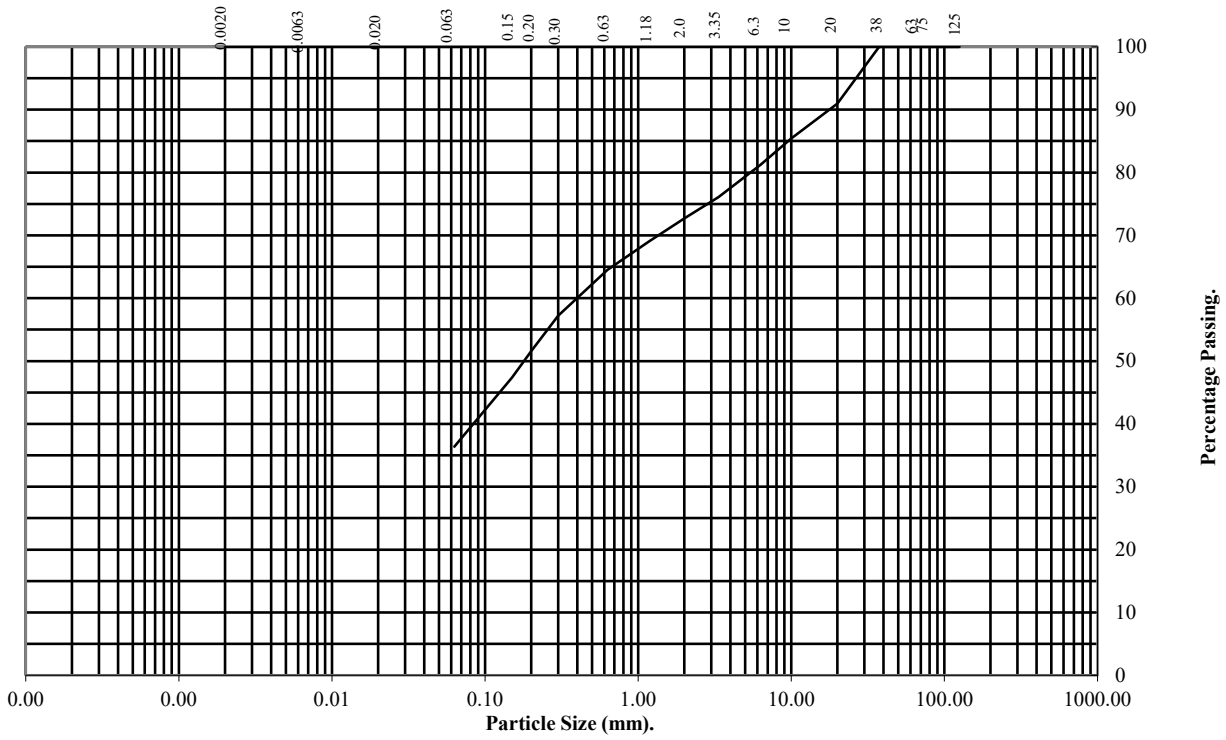
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: TP11 **Top Depth (m):** 2.00

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	91
10	85
6.3	81
3.35	76
2	73
1.18	69
0.63	65
0.3	57
0.2	52
0.15	47
0.063	36

Soil Fraction	Total Percentage
Cobbles	0
Gravel	27
Sand	37
Silt/Clay	36

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

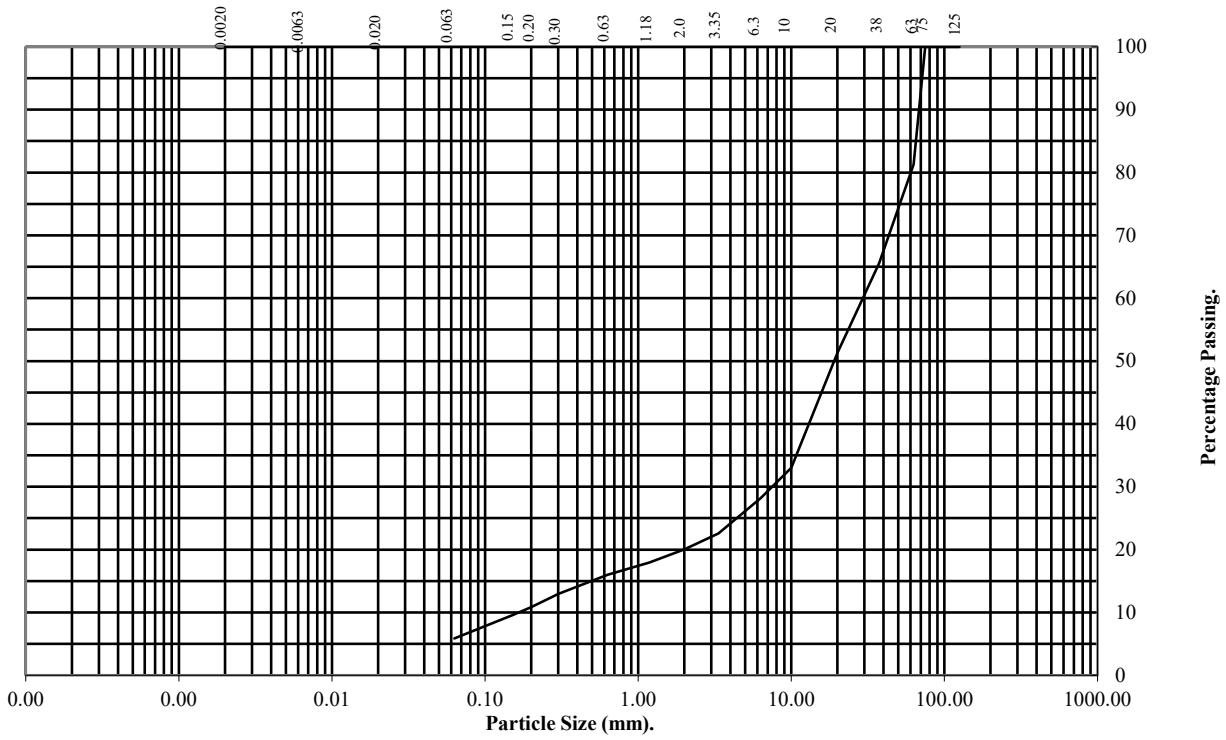
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: TP14 **Top Depth (m):** 2.00

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	81
37.5	66
20	51
10	33
6.3	28
3.35	23
2	20
1.18	18
0.63	16
0.3	13
0.2	11
0.15	10
0.063	6

Soil Fraction	Total Percentage
Cobbles	19
Gravel	61
Sand	14
Silt/Clay	6

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

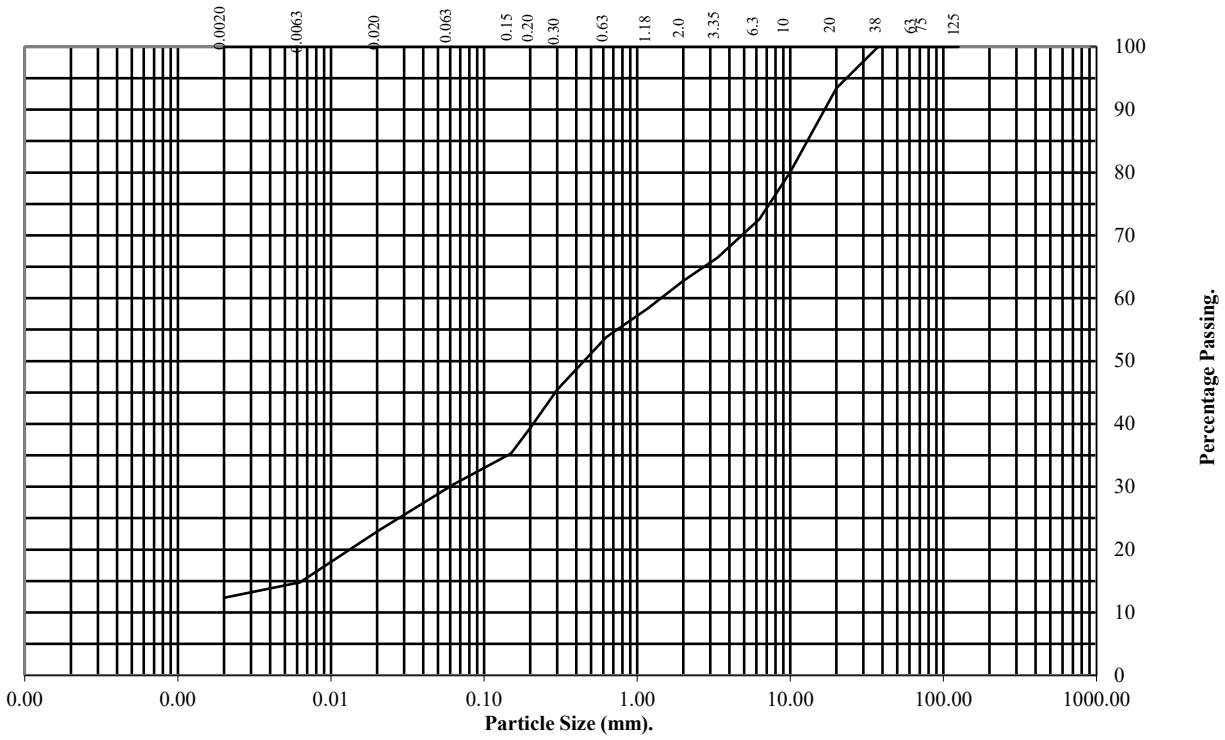
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

Hole Number: TP22 **Top Depth (m):** 2.00

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	93
10	80
6.3	73
3.35	66
2	63
1.18	58
0.63	54
0.3	45
0.2	39
0.15	35
0.063	30

Particle Diameter	Percentage Passing
0.020	23
0.0063	15
0.0020	12
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	33
Silt	18
Clay	12

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Lands South of Birr (Ballincor)

Contract No:
PSL24/8756
Client Ref:
13919-06-24

MOISTURE CONDITION VALUE (MCV)

BS1377 - Part 2 : 2022 : Clause 13

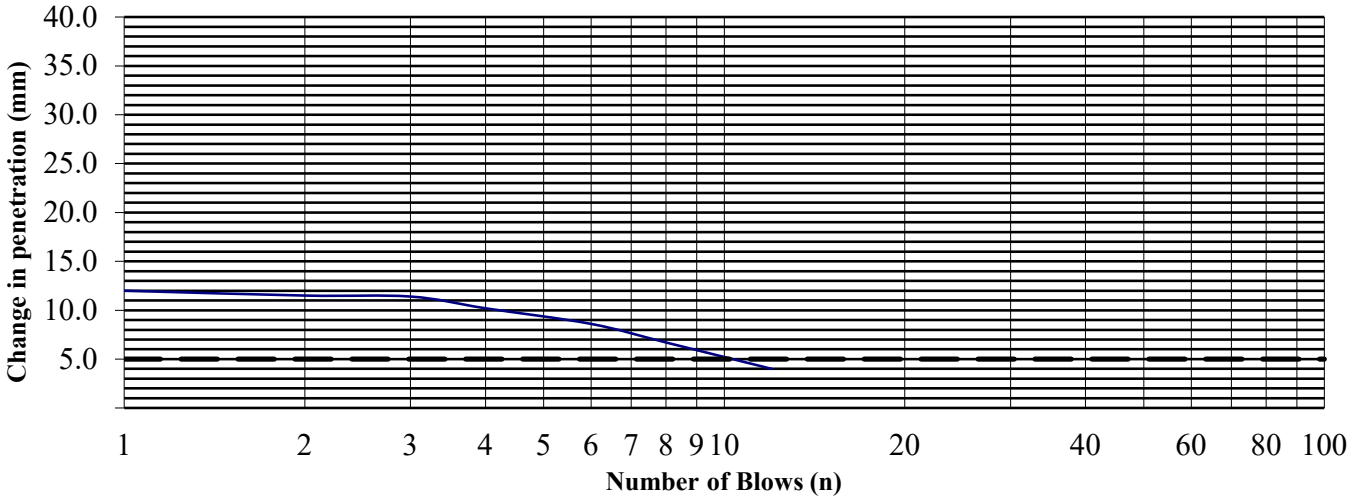
Hole Number: TP22 **Top Depth (m):** 2.00

Sample Number: **Base Depth (m):**

Sample Type: B

Material Retained on the 20mm BS Test Sieve (%):	7
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	54.6	12.0
2	48.5	11.5
3	45.4	11.4
4	42.6	10.2
6	39.3	8.6
8	37.0	6.7
12	34.0	4.0
16	32.4	
24	30.7	
32	30.3	
48	30.0	
64		
96		
128		
192		
256		

Test Results.

Water Content (%)	8.1
MCV	10.1

MOISTURE CONDITION VALUE (MCV)

BS1377 - Part 2 : 2022 : Clause 13

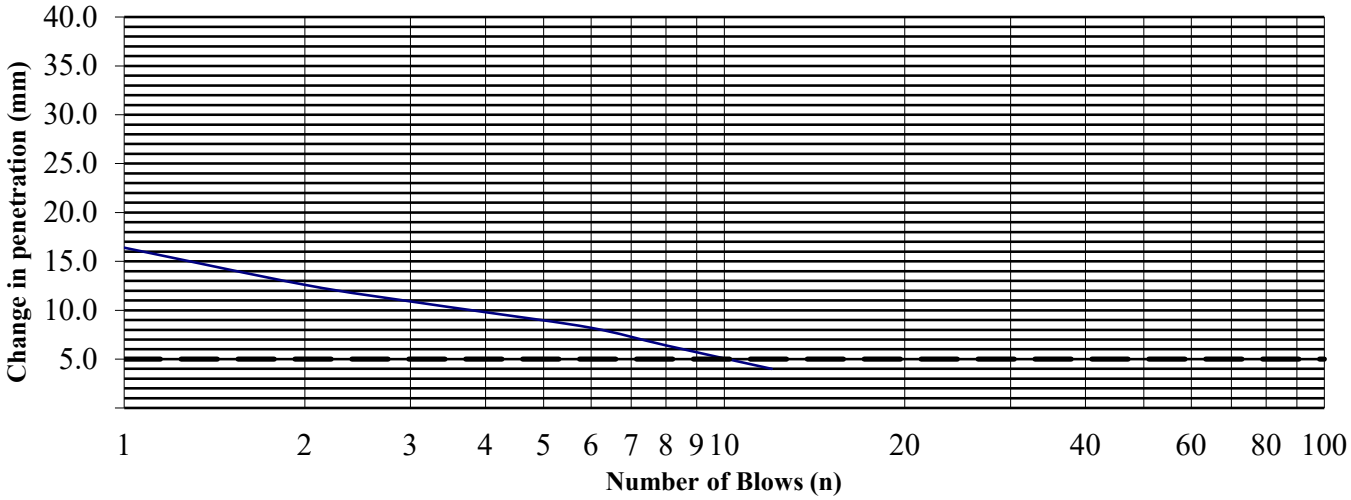
Hole Number: TP23 **Top Depth (m):** 2.00

Sample Number: **Base Depth (m):**

Sample Type: B

Material Retained on the 20mm BS Test Sieve (%):	3
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	59.5	16.4
2	50.3	12.6
3	46.0	10.9
4	43.1	9.8
6	39.9	8.2
8	37.7	6.4
12	35.1	4.0
16	33.3	
24	31.7	
32	31.3	
48	31.1	
64		
96		
128		
192		
256		

Test Results.

Water Content (%)	9.4
MCV	9.9

4161

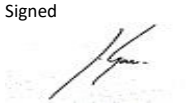
CONSTRUCTION TESTING SOLUTIONS
A PHENNA GROUP COMPANY
7 - 11 Harding Street
Leicester
LE1 4DH

Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

Analytical Test Report: E24/01826/PSL - 24-53796

Your Project Reference:	**PSL24/8756 Lands South of Birr (Ballincor)**		
Your Order Number:	PSL24/8756	Testing Received / Instructed:	10/12/2024 / 10/12/2024
Report Issue Number:	1	Sample Tested:	10/12 to 19/12/2024
Samples Analysed:	2 Sample(s)	Report issued:	19/12/2024

Signed



James Gane
Analytical Services Manager
CTS Group

Notes:

This report shall not be reproduced except in full

Samples will be retained for 14 days after issue of this report unless otherwise requested.

The results included within the report are representative of the samples submitted for analysis.

Some information required by BS1377 is not included in the report. The information will be provided if requested.

A certificate of sampling was not supplied

Samples were supplied by customer, results apply to the samples as received.

Within the report any information provided by the client is identified with a '#'

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Accreditation Key

UKAS = UKAS Accreditation, u = Unaccredited

Date of Issue: 05.12.2024

Issued by: J. Gane

Issue No: 1

Rev No: 12

4161

CONSTRUCTION TESTING SOLUTIONS
A PHENNA GROUP COMPANY
7 - 11 Harding Street
Leicester
LE1 4DH

E24/01826/PSL - 24-53796

Project Reference - PSL24/8756 Lands South of Birr (Ballincor)

Analytical Test Results

Lab Reference			427271	427272
Client Sample Reference			-	-
Location			TP09	TP11
Other ID			1	-
Depth - Top (m)			1.00	2.00
Depth - Bottom (m)			1.00	2.00
Date of Sampling			-	-
Supplier / Source			B	B
Sample Description			Black clayey silty loam with frequent organic matter	Light brown very gravelly slightly sandy silty clay with rare organic
	Units	**Accreditation**		
1377 Determinations				
Organic Matter	(%)	UKAS	47	0.4
1377 Sample Preparation - % of material passing 2mm test sieve			100	91
1377 Organic Matter - Sulphides/Chlorides Identified (Yes/No)			No	No

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CONSTRUCTION TESTING SOLUTIONS
A PHENNA GROUP COMPANY
7 - 11 Harding Street
Leicester
LE1 4DH

E24/01826/PSL - 24-53796

Project Reference - PSL24/8756 Lands South of Birr (Ballincor)

Analysis Methodologies

Test Title	Details and Test method used
BS1377 Organic Matter Content	1. Sample preparation was in accordance with BS 1377 : Part 1 : 2016 2. Testing was in accordance with BS 1377: Part 3: 2018 + A1: 2021 Clause 4. 3. The reported % organic content is the average organic matter content present in the soil fraction passing the 2mm test sieve to the nearest 0.1% of the original oven dry mass of soil. 4. Some information required by BS 1377 has not been reported. This information is available on request.