GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Catherinestown House,
Hazelhatch Road,
Newcastle,
Co. Dublin.
D22 YD52

Tel: 01 601 5175 / 5176
Email: info@gii.ie
Web: www.gii.ie

Ground Investigations Ireland

Housing Bundle 4 & 5 - Lot 2 – Church of the Annunciation Finglas

National Development Finance Agency

Factual Ground Investigation Report

March 2024

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DOCUMENT CONTROL SHEET

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Engineer	Malone O'Regan Consultant Engineer
Client	National Development Finance Agency
Project No	13061-08-23
Document Title	Factual Ground Investigation Report

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APPENDICES

1.0 Preamble

On the instructions of Malone O'Regan Consultant Engineers, a site investigation was carried out by Ground Investigations Ireland Ltd., between November and February 2024 at the site of the proposed residential development, Housing Bundle 4 & 5 Lot 2 Church of the Annunciation in Finglas, County Dublin.

2.0 Overview

2.1. Background

It is proposed to construct a new residential development with associated services, access roads and car parking at the proposed site. The site was previously used as a Church. The Church building has recently been demolition. The site currently consists of tarmacadam car parking to the north, with rubble from the demolished Church building taking up the majority of the south of the site. The proposed construction is envisaged to consist of conventional foundations and 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 6 No. Trial Pits to a maximum depth of 3.10m BGL
- Carry out 2 No. Soakaways to determine a soil infiltration value to BRE digest 365
- Carry out 6 No. Cable Percussion boreholes to a maximum depth of 6.80m BGL
- Carry out 2 No. Rotary Core Boreholes to a maximum depth of 16.00m BGL
- Installation of 3 No. Groundwater monitoring wells
- Geotechnical & Environmental Laboratory testing
- Factual Report

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 JCB 3CX 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 an 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. Soakaway Testing

The soakaway testing was carried out in selected trial pits at the locations shown in the exploratory hole location plan in Appendix 1. These pits were carefully excavated and filled with water to assess the infiltration characteristics of the proposed site. The pits were allowed to drain and the drop in water level was recorded over time as required by BRE Digest 365. The pits were logged prior to completing the soakaway test and were backfilled with arising's upon completion. The soakaway test results are provided in Appendix 3 of this Report.

3.4. Cable Percussion Boreholes

The Cable Percussion Boreholes were drilled using a Dando 2000 drilling rig with regular in-situ testing and sampling undertaken to facilitate the production of geotechnical logs and laboratory testing.
The standard method of boring in soil for site investigation is known as the Cable Percussion method. It consists of using a Shell in non cohesive soils and a clay cutter in cohesive soils, both operated on a wire cable. Very hard soils, boulders and other hard obstructions are broken up by chiselling and the fragments removed with the Shell. Where ground conditions made it necessary, the borehole was lined with 200mm diameter steel casing. While the use of the Cable Percussion method of boring gives the maximum data on soil conditions, some mixing of laminated soil is inevitable. For this reason, thin lenses of granular material may not be noticed. Disturbed samples were taken from the boring tools at suitable depths, so that there is a representative sample at the top of each change in stratum and thereafter at regular intervals down the borehole until the next stratum was encountered. The disturbed samples were then sealed and sent to the laboratory where they were visually examined to confirm the description of the relevant strata.
Standard Penetration Tests were carried out in the boreholes. The results of these tests, together with the depths at which the tests were taken are shown on the accompanying borehole records. The test consists of a thick wall sampler tube, 50mm external diameter, being driven into the soil by a monkey weighing 63.5kg and with a free drop of 760mm. For gravels and glacial till the driving shoe was replaced by a solid 60º cone. The Standard Penetration Test number referred to as the 'N' value is the number of blows required to drive the tube 300mm, after an initial penetration of 150mm. The number gives a guide to the consistency of the soil and can also be used to estimate the relative strength/density at the depth of the

test and also to estimate the bearing capacity and compressibility of the soil. The cable percussion borehole logs are provided in Appendix 4 of this Report.

3.5. 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 5 of this Report.

3.6. 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.

3.7. Groundwater Monitoring Installations

Groundwater Monitoring Installation were installed upon the completion of the boreholes to enable sampling and the determination of the equilibrium groundwater level. The typical groundwater monitoring installation consists of a 50mm uPVC/HDPE slotted pipe with a pea gravel response zone and bentonite seal installed to the Engineers specification. Where required the standpipe is sealed with a gas tap and finished with a durable steel cover fixed in place with a concrete surround. The installation details are provided on the exploratory hole logs in the appendices of this Report.

3.8. Laboratory Testing

Samples were selected from the exploratory holes for a range of geotechnical and environmental testing to assist in the classification of soils and to provide information for the proposed design.

Environmental & Chemical testing as required by the specification, including the Rilta Suite/Engineers Ireland Suite I, organic matter, pH and sulphate testing was carried out by Element Materials Technology Laboratory in the UK. The Rilta suite testing includes both Solid Waste and Leachate Waste Acceptance Criteria.

Geotechnical testing consisting of moisture content, Atterberg limits, Particle Size Distribution (PSD), hydrometer, California Bearing Ratio (CBR), resistivity and redox tests were carried out in Professional Soils Laboratory (PSL Ltd) in the UK.

Rock strength testing including Point Load (Is_{50}) and Unconfined Compressive Strength (UCS) testing was carried out in CMTL Geotechnical Laboratory in Portlaoise.

The results of the laboratory testing are included in Appendix 6 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/Surfacing
- Made Ground
- Granular Deposits
- Cohesive Deposits
- Bedrock

TOPSOIL: Topsoil was encountered in some of the exploratory holes and was present to a maximum depth of 0.50m BGL. Tarmac surfacing was present typically to a depth of 0.08m to 0.18m BGL.

MADE GROUND: Made Ground deposits were encountered beneath the Topsoil/Surfacing and were present to variable depths of between 0.50m and 1.70m BGL. These deposits were described generally as *grey brown* or *brown slightly sandy slightly gravelly Clay with cobbles and boulders and contained occasional fragments of concrete, red brick and plastic* or *grey slightly sandy clayey fine to coarse subangular to subrounded Gravel* or *Crushed Rock Fill.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground and were described typically as *yellowish brown* or *brown slightly sandy slightly gravelly CLAY with occasional cobbles and boulders* overlying a *stiff dark grey or black slightly sandy slightly gravelly CLAY with occasional cobbles and boulders*. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. The strength of the cohesive deposits typically increased with depth and was firm to stiff or stiff below 2.00m BGL in the majority of the exploratory holes. These deposits had some, occasional or frequent cobble and boulder content, where noted on the exploratory hole logs.

GRANULAR DEPOSITS: Granular deposits were encountered within the cohesive deposits and were typically described as dark grey *medium to coarse angular clayey GRAVEL.* The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs.
Based on the SPT N values the deposits are typically dense. It should be noted that many of the trial pits where granular deposits or groundwater were encountered, experienced instability.

BEDROCK: The rotary core boreholes recovered medium strong to strong dark grey fine grained massive LIMESTONE. This is typical of the Lucan Formation, which is noted on the geological mapping to the east of the proposed site.
The depth to rock varies from 9.58m BGL in BH02 to a maximum of 10.50m BGL in BH01. The total core recovery is good, typically 100% with some of the uppermost runs dropping to 80 or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in each of the boreholes.

4.2. Groundwater

Groundwater strikes are noted on the exploratory hole logs where they occurred and where possible drilling was suspended for twenty minutes to allow the subsequent rise in groundwater to be recorded. 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 tide, time of year, rainfall, nearby construction and other factors. For this reason, A standpipe was installed in BH02 to allow the equilibrium groundwater level to be determined.

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 low to intermediate plasticity. The Particle Size Distribution tests confirm that generally the cohesive deposits are well-graded with percentages of sands and gravels ranging between 15.20% and 41.40% generally with fines contents of 27.90% to 50.70%.
The CBR testing on remoulded samples gave results ranging between 1.1% and 71.70% for the cohesive deposits. The Thermal Resistivity results range from 20.935 to 36.819 Ohms/m while the Redox potential range from 530 to 550 mV.

4.3.2. Chemical Laboratory Testing

The pH and sulphate testing carried out indicate that pH results are near neutral and that the water soluble sulphate results is low when compared to the guideline values from BRE Special Digest 1:2005. The samples tested classify the soil as a Design Sulphate Level DS-1.

4.3.3. Environmental Laboratory Testing

A number of samples were analysed for a suite of parameters which allows for the assessment of the sampled material in terms of total pollutant content for classification of materials as *hazardous* or *non-hazardous*. The suite also allows for the assessment of the sampled material in terms of suitability for placement at licenced landfills (inert, stable non-reactive, hazardous etc.). The parameter list for the suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, cyanide, lead,

nickel, mercury, zinc, speciated aliphatic and aromatic petroleum hydrocarbons, pH, sulphate, sulphide, moisture content, soil organic matter and an asbestos screen.
The suite also includes those parameters specified in the EU Council Decision establishing criteria for the acceptance of waste at Landfills (Council Decision 2003/33/EC), which for the solid samples are total organic carbon (TOC), speciated aliphatic and aromatic petroleum hydrocarbons, BTEX, phenol, polychlorinated biphenyls (PCB) and PAH.
As part of the suite a leachate is generated from the solid sample which is analysed for antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, chloride, fluoride, soluble sulphate, sulphide, phenols, dissolved organic carbon (DOC) and total dissolved solids (TDS).
While the laboratory report provides a comparison with the waste acceptance criteria limits it does not provide a waste classification of the material sampled nor does it comment on any potentially hazardous properties of the materials tested. The possibility for contamination, not revealed by the testing undertaken should be borne in mind particularly where Made Ground deposits are present or the previous site use or location indicate a risk of environmental variation. 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.

4.3.4. Rock Laboratory Testing

The rock testing carried out on samples recovered from the boreholes reported Unconfined Compressive Strength (UCS) values ranging between 88.2 MPa and 106.4 MPa while the point load testing gave Is50 values ranging between 4.09 MPa to 6.15 MPa. The Is_{50} results correlate to the UCS values using a factor of approximately 20, giving values of 81.8 MPa and 123 MPa. These results correlate to the strength descriptions ranging between of Strong to Very Strong and confirming the variability of this stratum and the descriptions on the logs.

APPENDIX 1 - Site Location Plan

Client:

MALONE O'REGAN
CONSULTING ENGINEERS

Project Code:

12158-08-22

Project Title:

Housing Bundle 4 & 5 - Lot 2
-Church of the Annunciation

Drawing Title:

Figure 1 Site Location

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

0 10 20 30 40

Drawn By:	Date:
DML	11.01.24

APPENDIX 2 – Trial Pit Records

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Housing Bundle 4&5- Lot 2- Finglas Church	TP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.80m x 1.00m x 3.00m (L x W x D)	64.45	National Development Finance Agency	13061-08-23(2)
	Location	**Dates**	**Engineer**	**Sheet**
	738921.9 E 712300.3 N	17/10/2023		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.50)	MADE GROUND grey slightly sandy very gravelly Clay with fragments of red brick and concrete		
0.50	B1		Slow(1) at 0.70m.	63.95	0.50	Soft to firm grey slightly sandy slightly gravelly CLAY		▽1
					(0.40)			
1.00	B2			63.55	0.90	Firm brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
					(0.80)			
2.00	B3			62.75	1.70	Soft to firm brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
					(0.90)			
			Slow(2) at 2.60m.	61.85	2.60	Firm to stiff dark grey slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		▽2
					(0.40)			
3.00	B4			61.45	3.00	Complete at 3.00m		

Plan

Remarks

Groundwater encountered at 0.70m and 2.60m BGL
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13061-08-23(2).TP01

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Site	Trial Pit Number
Housing Bundle 4&5- Lot 2- Finglas Church	TP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	5.00m x 1.00m x 3.10m (L x W x D)	64.47	National Development Finance Agency	13061-08-23(2)
	Location	**Dates**	**Engineer**	**Sheet**
	738881.1 E 712276.4 N	17/10/2023		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	B1				(1.70)	MADE GROUND brown slightly sandy gravelly Clay with many fragments of red brick, slab and concrete		
1.00	B2							
			Slow(1) at 1.70m.	62.77	1.70	Firm to stiff dark grey slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		▽1
2.00	B3				(1.40)			
3.00	B4			61.37	3.10	Complete at 3.10m		

Plan

Remarks

Groundwater encountered at 1.70m BGL
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13061-08-23(2).TP01

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Site	Trial Pit Number
Housing Bundle 4&5- Lot 2- Finglas Church	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.30m x 0.90m x 3.00m (L x W x D)	62.80	National Development Finance Agency	13061-08-23(2)
	Location	**Dates**	**Engineer**	**Sheet**
	738860.8 E 712324.4 N	17/10/2023		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				62.50	0.30			
0.50	B1				(0.50)	MADE GROUND dark brown slightly sandy gravelly Clay with occasional angular to sub angular cobbles and fragments of red brick and plastic		
				62.00	0.80			
1.00	B2				(0.50)	Soft to firm brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
				61.50	1.30			
2.00	B3				(1.40)	Firm brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles		
				60.10	2.70			
					(0.30)	Very stiff dark grey slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles		
3.00	B4			59.80	3.00	Complete at 3.00m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13061-08-23(2).TP03

Housing Bundle - Church

TP01

Housing Bundle - Church

TP02

Housing Bundle - Church

TP03

APPENDIX 3 – Soakaway Records

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Catherinestown House,
Hazelhatch Road,
Newcastle,
Co. Dublin.
D22 YD52

Tel: 01 601 5175 / 5176
Email: info@gii.ie
Web: www.gii.ie

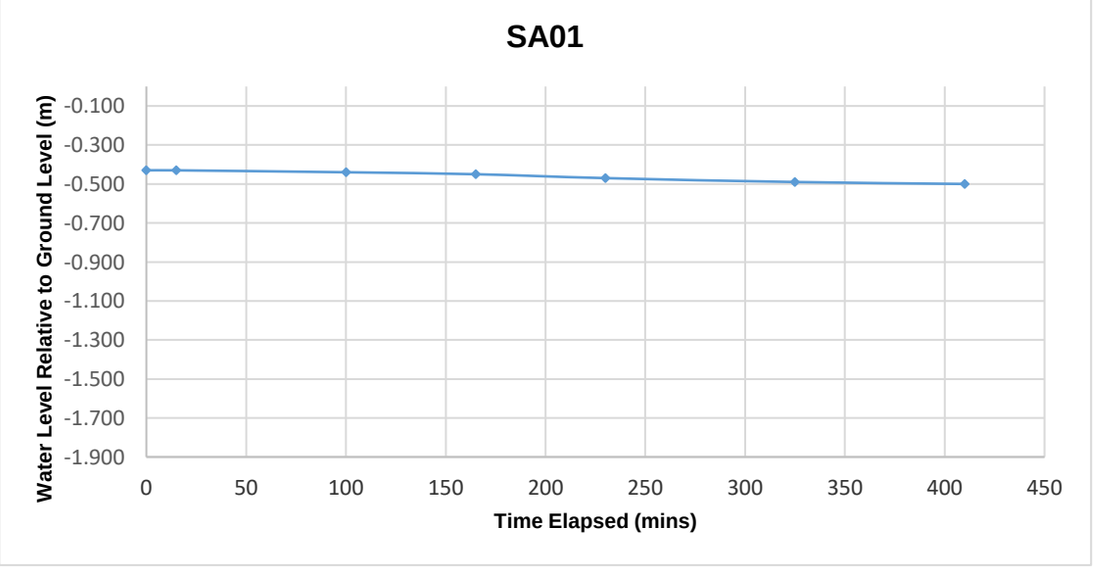
SA01

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.30m x 0.50m x 1.90m (L x W x D)

Date	Time	Water level (m bgl)
17/10/2023	0	-0.430
17/10/2023	15	-0.430
17/10/2023	100	-0.440
17/10/2023	165	-0.450
17/10/2023	230	-0.470
17/10/2023	325	-0.490
17/10/2023	410	-0.500

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.43	1.900	1.470	0.7975	1.5325



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Geotechnical & Environmental

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D22 YD52

Tel: 01 601 5175 / 5176
Email: info@gii.ie
Web: www.gii.ie

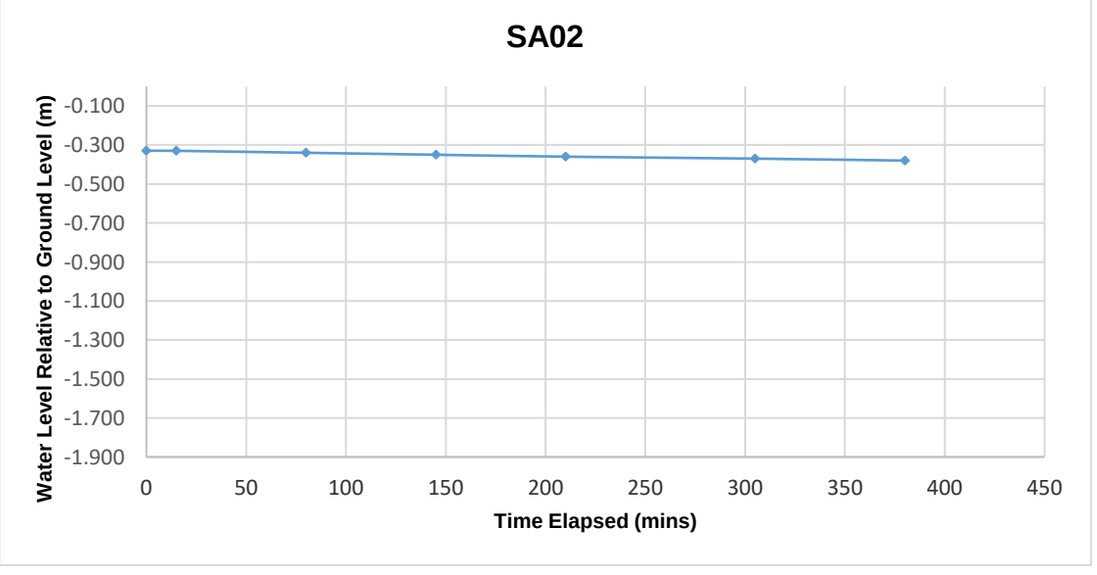
SA02

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.80m x 0.50m x 1.90m (L x W x D)

Date	Time	Water level (m bgl)
17/10/2023	0	-0.330
17/10/2023	15	-0.330
17/10/2023	80	-0.340
17/10/2023	145	-0.350
17/10/2023	210	-0.360
17/10/2023	305	-0.370
17/10/2023	380	-0.380

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.33	1.900	1.570	0.7225	1.5075



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Site	Trial Pit Number
Housing Bundle 4&5- Lot 2- Finglas Church	SA01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.30m x 0.50m x 1.90m (L x W x D)	62.52	National Development Finance Agency	13061-08-23(2)
	Location 738860.4 E 712261 N	**Dates** 17/10/2023	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.50)	MADE GROUND grey slightly sandy clayey fine to coarse sub angular to sub rounded Gravel		
				62.02	0.50			
					(0.80)	Firm greyish brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
				61.22	1.30			
					(0.60)	Firm to stiff brown slightly sandy gravelly CLAY		▽1
			Slow(1) at 1.80m.	60.62	1.90			
						Complete at 1.90m		

Plan

Remarks

Groundwater encountered at 1.80m BGL
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13061-08-23(2).SA01

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Site	Trial Pit Number
Housing Bundle 4&5- Lot 2- Finglas Church	SA02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.50m x 1.90m (L x W x D)	63.86	National Development Finance Agency	13061-08-23(2)
	Location	**Dates**	**Engineer**	**Sheet**
	738901.1 E 712337.2 N	17/10/2023		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				63.56	0.30	Soft to firm brown slightly sandy slightly gravelly CLAY		
					(0.50)			
				63.06	0.80	Firm brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
					(1.10)			
				61.96	1.90	Complete at 1.90m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13061-08-23(2).SA02

Housing Bundle - Church

SA01

Housing Bundle - Church

SA02

APPENDIX 4 – Cable Percussion Borehole Records

Ground Investigations Ireland Ltd
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Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH03
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 200mm cased to 6.20m	**Ground Level (mOD)** 63.29	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738887.9 E 712349.8 N	**Dates** 01/11/2023-02/11/2023	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.50)	TOPSOIL		
					62.79	0.50	Soft to firm yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded.		
1.00-1.45 1.00	SPT(C) N=8 B1			1,1/1,2,2,3		(1.50)			
2.00-2.45 2.30	SPT(C) N=35 B2			2,3/6,7,10,12	61.29	2.00	Very stiff dark grey/black slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular to very angular.		
3.00-3.40 3.00	SPT(C) 50/250 B3			6,11/14,16,18,2 Water strike(1) at 3.40m, rose to 3.35m in 20 mins.					▼1 ▽1
4.00-4.40 4.00	SPT(C) 50/250 B4			4,8/12,14,19,5		(4.20)			
5.00-5.35 5.00	SPT(C) 50/200 B5			6,7/15,15,20 Water strike(2) at 5.60m, rose to 5.40m in 20 mins.					▼2 ▽2
6.00-6.18	SPT(C) 50/30			7,13/50	57.09	6.20	Terminated at 6.20m		

Remarks
Cable percussion boring techniques carried out from ground level to 6.2m bGL.
Borehole terminated at 6.2m bGL due to obstruction - possible boulder or bedrock.
Borehole backfilled on completion.
Chiselling from 6.20m for 0.417 hours.

Scale (approx)	Logged By
1:50	JI

Figure No. 13061-08-23(2).BH03

Ground Investigations Ireland Ltd
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Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH04
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 200mm cased to 5.60m	**Ground Level (mOD)** 63.07	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738884.4 E 712263.1 N	**Dates** 07/11/2023-08/11/2023	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					62.89	(0.18) 0.18	MADE GROUND: Crushed Rocl Fill		
							MADE GROUND: Coarse Crushed Rock Fill		
					62.32	(0.57) 0.75			
					62.07	(0.25) 1.00	MADE GROUND: Dark grey slightly sandy slightly gravelly Clay. Gravel is fine to coarse angular.		
1.00-1.45 1.00	SPT(C) N=22 B1			3,34/6,5,5,6			Stiff yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded with low cobble content.		
2.00-2.45 2.00	SPT(C) N=34 B2			2,3/5,7,10,12		(2.00)			
3.00-3.45 3.00	SPT(C) N=50 B3			5,11/13,14,16,7	60.07	3.00	Very stiff slightly sandy gravelly CLAY Gravel is fine to coarse sub angular to angular with low cobble content.		
4.00-4.45 4.00	SPT(C) N=50 B4			6,7/19,21,10		(2.60)			
5.00-5.45 5.00	SPT(C) N=50 B5			4,10/20,30					
5.50 5.60-6.05	B6 SPT(C) N=50			20,20/50	57.47	5.60	Terminated at 5.60m		

Remarks
Borehole terminated at 5.6m bGL due to obstruction - possible boulder or bedrock.
Cable percussion boring techniques carried our from ground level to 5.6m bGL.
Borehole backfilled on completion.
Chiselling from 5.60m to 5.60m for 0.3 hours.

Scale (approx)	Logged By
1:50	JC

Figure No. 13061-08-23(2).BH04

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH05
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 200mm cased to 6.80m	**Ground Level (mOD)** 62.82	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738862 E 712333.1 N	**Dates** 02/11/2023-03/11/2023	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.40)	TOPSOIL		
					62.42	0.40			
0.50	B1					(0.40)	MADE GROUND: Brown Clay with fragments of red brick		
					62.02	0.80			
1.00-1.45	SPT(C) N=11			1,3/2,2,3,4			Firm yellowish brown slightly sandy gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded.		
1.50	B2					(1.20)			
2.00-2.45	SPT(C) N=15			2,2/4,3,4,4	60.82	2.00			
2.70	B3					(1.50)	Stiff dark grey to black slightly sandy gravelly CLAY. Gravel is fine to coarse angular to very angular.		
3.00-3.45	SPT(C) N=29			3,5/5,6,8,10					
3.50	B4				59.32	3.50			
4.00-4.41	SPT(C) 53/260			6,7/11,14,17,11			Very stiff dark grey to black slightly sandy gravelly CLAY. Gravel is fine to coarse angular to very angular.		
4.50	B5								
				Water strike(1) at 5.00m, rose to 4.90m in 20 mins.		(3.10)			▼1 ▽1
5.00-5.33	SPT(C) 50/180			5,9/12,16,22					
5.50	B6								
6.00-6.25	SPT(C) 50/100			7,12/20,30					
					56.22	6.60			
6.60	B7					(0.20)	Dense dark grey coarse angular very clayey GRAVEL.		
6.80-6.88	SPT(C) 50*/75 50/0			50/50	56.02	6.80			
							Terminated at 6.80m		

Remarks
Cable percussion boring techniques carried out from ground level to 6.8m bGL.
Borehole backfilled on completion.
Borehole terminated at 6.8m bGL due to obstruction - possible boulder or bedrock.
Chiselling from 6.80m for 0.5 hours.

Scale (approx)	Logged By
1:50	JI

Figure No. 13061-08-23(2).BH05

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH06
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 200mm cased to 5.10m	**Ground Level (mOD)** 64.40	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738884.1 E 712277.7 N	**Dates** 08/11/2023	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(1.00)	Pit excavated prior to drilling.		
1.00-1.45 1.00	SPT(C) N=9 B1			1,1/2,2,2,3	63.40	1.00 (0.60)	Firm yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub rounded.		
					62.80	1.60 (0.40)	Firm to stiff black/dark grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to very angular with low cobble content.		
2.00-2.45 2.00	SPT(C) N=15 B2			2,3/3,3,5,4	62.40	2.00	Stiff black/dark grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to very angular with low cobble content.		
3.00-3.45 3.00	SPT(C) N=22 B3			3,3/3,4,6,9		(2.00)			
4.00-4.38 4.00	SPT(C) 53/225 B4			5,7/13,17,23	60.40	4.00 (1.10)	Very stiff black/dark grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to very angular with low cobble content.		
5.00-5.00 5.00	SPT(C) 25*/0 50/0 B5			25/50	59.30	5.10	Complete at 5.10m		

Remarks
Borehole terminated due to obstruction - possible boulder or bedrock.
Cable percussion boring techniques carried out from ground level to 5.1m bGL.
Chiselling from 4.90m to 5.10m for 1 hour.

Scale (approx)	Logged By
1:50	JI

Figure No. 13061-08-23(2).BH06

APPENDIX 5 - Rotary Borehole Records

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH01
Machine : Dando 2000 and Baretha T-41 **Method :** Percussion with Rotary Core Follow-on	**Casing Diameter** 200mm cased to 6.20m 63.5mm cased to 16.00m	**Ground Level (mOD)** 63.88	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738927.6 E 712347.6 N	**Dates** 03/11/2023-30/01/2024	**Engineer**	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					63.80	0.08	MADE GROUND: Tarmacdam		
					63.68	0.20	MADE GROUND: Grey brown sandy gravelly CLAY		
						(0.30)			
					63.38	0.50	MADE GROUND: Grey sandy CRUSHED ROCK FILL with concrete fragments		
				Water strike(1) at 0.60m, rose to 0.45m in 20 mins.		(0.50)			
1.00-1.45 1.00	SPT(C) N=23 B1			5,4/6,4,6,7	62.88	1.00	Stiff yellowish brown slightly sandy gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded.		
							Stiff grey slightly sandy slightly gravelly CLAY gravel is fine to coarse sub-angular to sub-rounded.		
2.00-2.41 2.00	SPT(C) 50/260 B2			6,7/8,12,16,14 Water strike(2) at 2.20m, rose to 1.70m in 20 mins.		(2.00)			
3.00-3.45 3.00	SPT(C) N=50 B3			6,8/13,14,15,8	60.88	3.00	Very stiff dark grey slightly sandy slightly gravelly CLAY GRavel is sub-angular to sub-rounded.		
	100 0	0							
4.00-4.45 4.00	SPT(C) N=50 B4			4,9/12,16,16,6		(2.90)			
5.00-5.45 5.00	SPT(C) N=50 B5		0	8,9/14,16,20					
6.00	B6			Water strike(3) at 5.90m, rose to 5.80m in 20 mins.	57.98	5.90	Dense grey coarse sub-rounded to very angular GRAVEL with medium cobble content.		
6.00-6.20	SPT(C) 50/50			10,13/50	57.68	(0.30) 6.20	Dark grey slightly sandy very gravelly CLAY with occasional sub angular to sub rounded cobbles		
				7,9/11,12,14,13					
7.00-7.45 7.00	TCR SCR RQD FI 63 0 0			SPT(C) N=50					
8.50-8.95 8.50	59 0	0		9,12/15,18,17 SPT(C) N=50		(4.30)			
10.00									

Remarks
Cable percussion boring techniques carried out from ground level to 6.20 m BGL.
Rotary Coring techniques carried out to 16.00m BGL
No groundwater encountered
Borehole backfilled on completion.

Scale (approx)	Logged By
1:50	JI & JC & GGR

Figure No. 13061-08-23(2).BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH01
Machine : Dando 2000 and Baretha T-41 **Flush :** **Core Dia :** mm **Method :** Percussion with Rotary Core Follow-on	**Casing Diameter** 200mm cased to 6.20m 63.5mm cased to 16.00m	**Ground Level (mOD)** 63.88	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738927.6 E 712347.6 N	**Dates** 03/11/2023-30/01/2024	**Engineer**	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00-10.20					SPT(C) 50/50 8,15/24,26			... as previous		
10.50	89	17	7	24		53.38	10.50	Medium strong massive grey fine grained LIMESTONE moderately weathered		
11.50	100	80	53	23			(2.50)	10.50m to 13.00m BGL: Sequence consists of two fracture sets. F1: Dipping 0-30 degrees, close to wide spaced, planar smooth with clay smearing. F2: Dipping 70-90 Degrees, medium to wide spaced, planar smooth with clay smearing		
13.00	100	67	52	32		50.88	13.00	Strong to very strong massive dark grey fine grained LIMESTONE slightly weathered		
14.50	100	44	33				(3.00)	13.00m to 16.00m BGL: Sequence consists of two fracture sets. F1: Dipping 0-30 degrees, close to medium spaced, planar to undulating smooth . F2: Dipping 70-90 Degrees, medium to wide spaced, planar rough		
15.50				26						
16.00						47.88	16.00	Terminated at 16.00m		

Remarks

Scale (approx)	Logged By
1:50	JI & JC & GGR

Figure No. 13061-08-23(2).BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH02
Machine : Dando 2000 and Baretha T-41 **Method :** Cable Percussion	**Casing Diameter** 200mm cased to 6.30m 63.5mm cased to 13.00m	**Ground Level (mOD)** 64.05	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738925.9 E 712265.4 N	**Dates** 08/11/2023-31/01/2024	**Engineer**	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					63.97	0.08 (0.22)	MADE GROUND Blue grey CRUSHED ROCK FILL			
					63.75	0.30	MADE GROUND: Angular COBBLES with concrete bricks			
1.00-1.45 1.00	SPT(C) N=18 B1			2,3/4,5,5,4		(1.70)	Stiff yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded.			
2.00-2.45 2.00	SPT(C) N=31 B2			4,5/6,8,8,9	62.05	2.00	Very stiff black/dark grey slightly sandy slightly gravelly CLAY gravel is fine to coarse sub-angular to sub-rounded.			
3.00-3.45 3.00	SPT(C) N=35 B3			3,4/7,9,9,10					▼1	
	100 0	0	0	Water strike(1) at 3.20m, rose to 3.10m in 20 mins.						
4.00-4.45 4.00	SPT(C) N=48 B4			5,7/8,12,13,15		(4.00)				
5.00-5.38 5.10	SPT(C) 50/225 B5			6,11/13,17,20						
6.00-6.20 6.00	SPT(C) 50/50 B6			10,15/50	58.05	6.00 (0.30)	Dense dark grey medium to coarse angular to very angular clayey GRAVEL			
				9,12/15,20,15	57.75	6.30	Very stiff grey slightly sandy very gravelly CLAY with occasional sub angular to sub rounded cobbles			
7.00-7.45 7.00	TCR 90 SCR 0	RQD 0	FI 0	SPT(C) N=50		(3.28)				
8.50-8.80 8.50	TCR 93 SCR 27	0	0	10,15/20,30 SPT(C) 50/150						
9.58		20	6		54.47	9.58	Strong to very strong massive dark grey fine grained LIMESTONE slightly weathered			
10.00										

Remarks
Cable percussion boring techniques carried out from ground level to 6.30m BGL.
Rotary coring techniques carried out to 13.00m BGL
No groundwater encountered
Borehole backfilled upon completion

Scale (approx)	Logged By
1:50	JC & GGR

Figure No. 13061-08-23(2).BH02

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 2- Finglas Church			**Borehole Number** BH02
Machine : Dando 2000 and Baretha T-41 **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 200mm cased to 6.30m 63.5mm cased to 13.00m	**Ground Level (mOD)** 64.05	**Client** National Development Finance Agency	**Job Number** 13061-08-23(2)
	Location 738925.9 E 712265.4 N	**Dates** 08/11/2023-31/01/2024	**Engineer**	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	71	55	22			(3.42)	... as previous			
11.50	100	89	67	18				9.58m to 13.00m BGL: Sequence consists of two fracture sets. F1: Dipping 0-30 degrees, close to medium spaced, planar smooth with clay smearing. F2: Dipping 60-80 degrees, medium to wide spaced,undulating rough to planar smooth.			
13.00						51.05	13.00	Terminated at 13.00m			

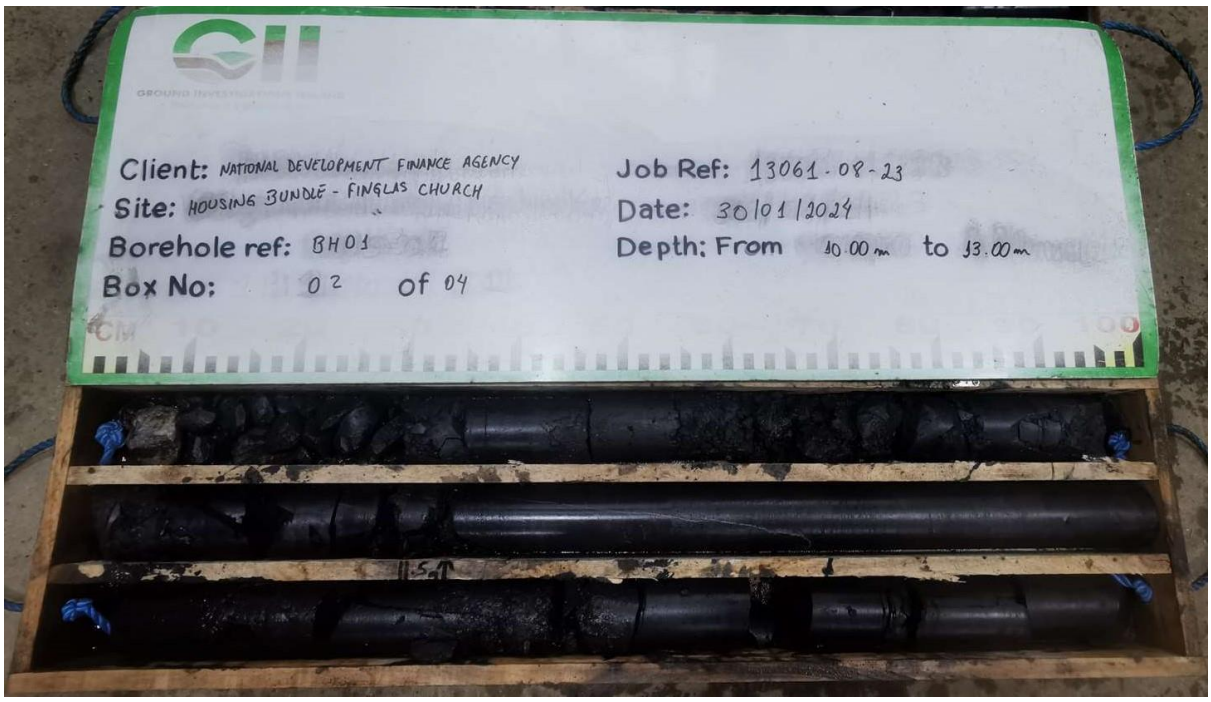
Remarks

Scale (approx)	Logged By
1:50	JC & GGR

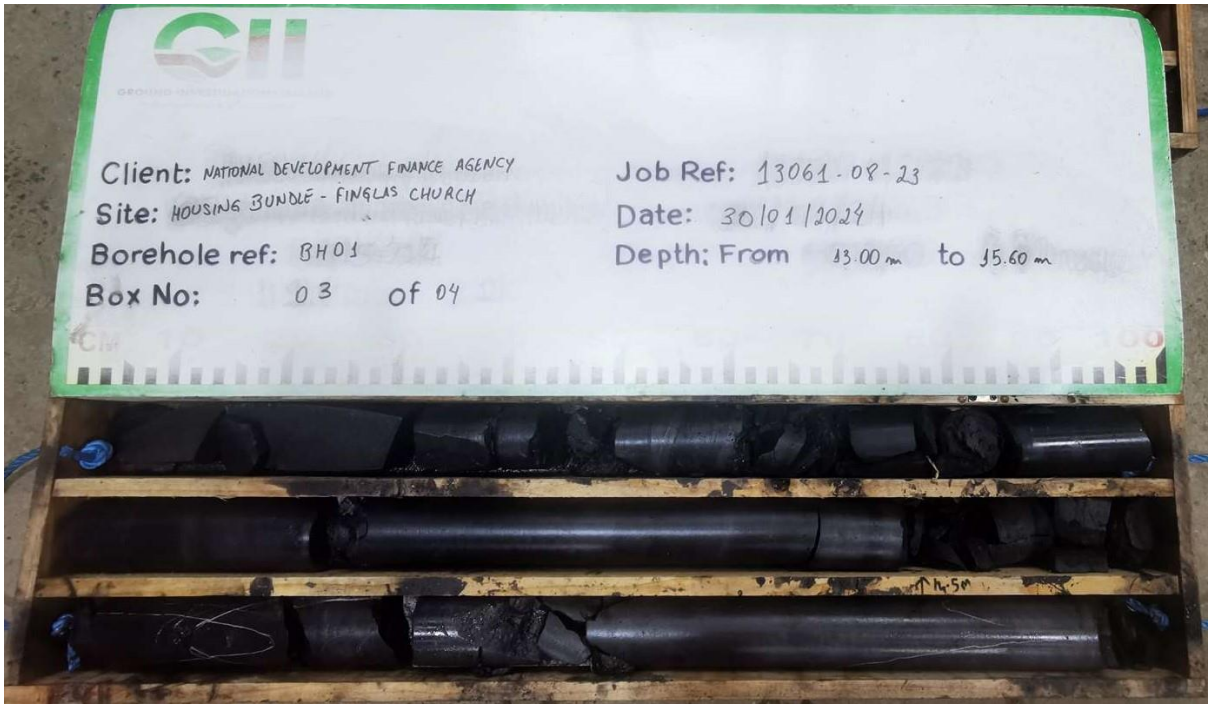
Figure No. 13061-08-23(2).BH02

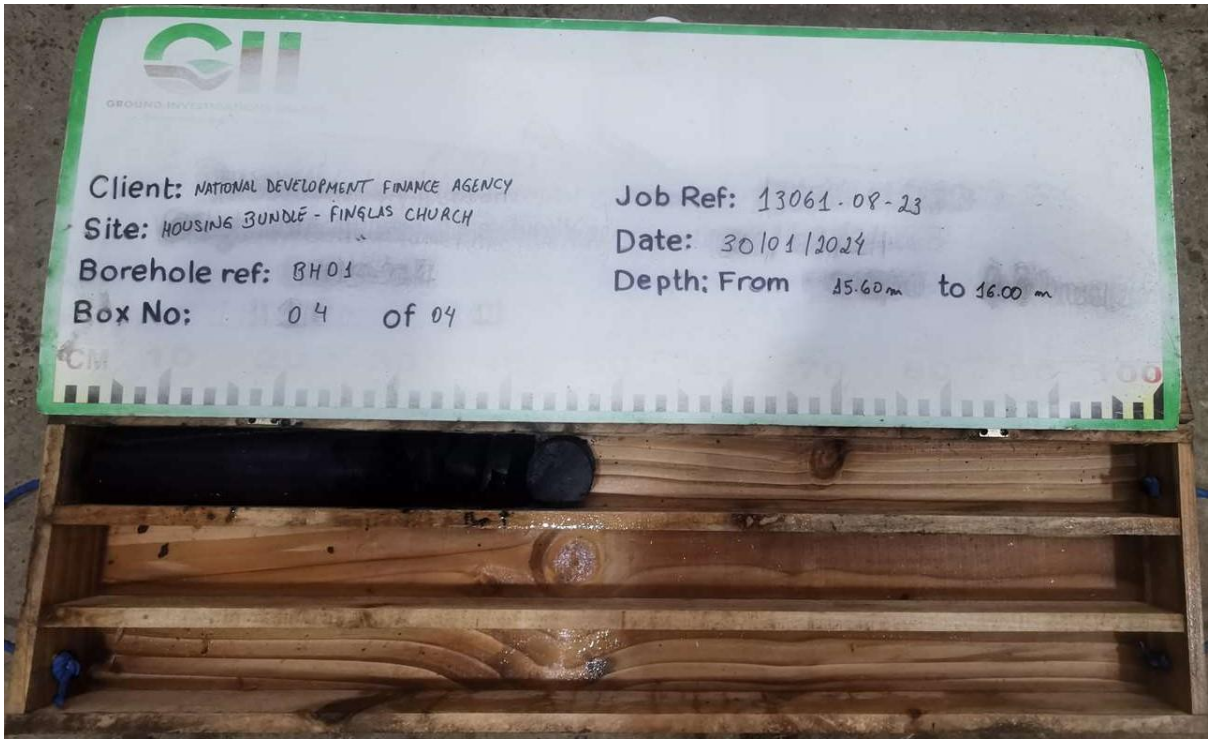
Housing Bundle_ Finglas Church_ Rotary Core Photos

BH01



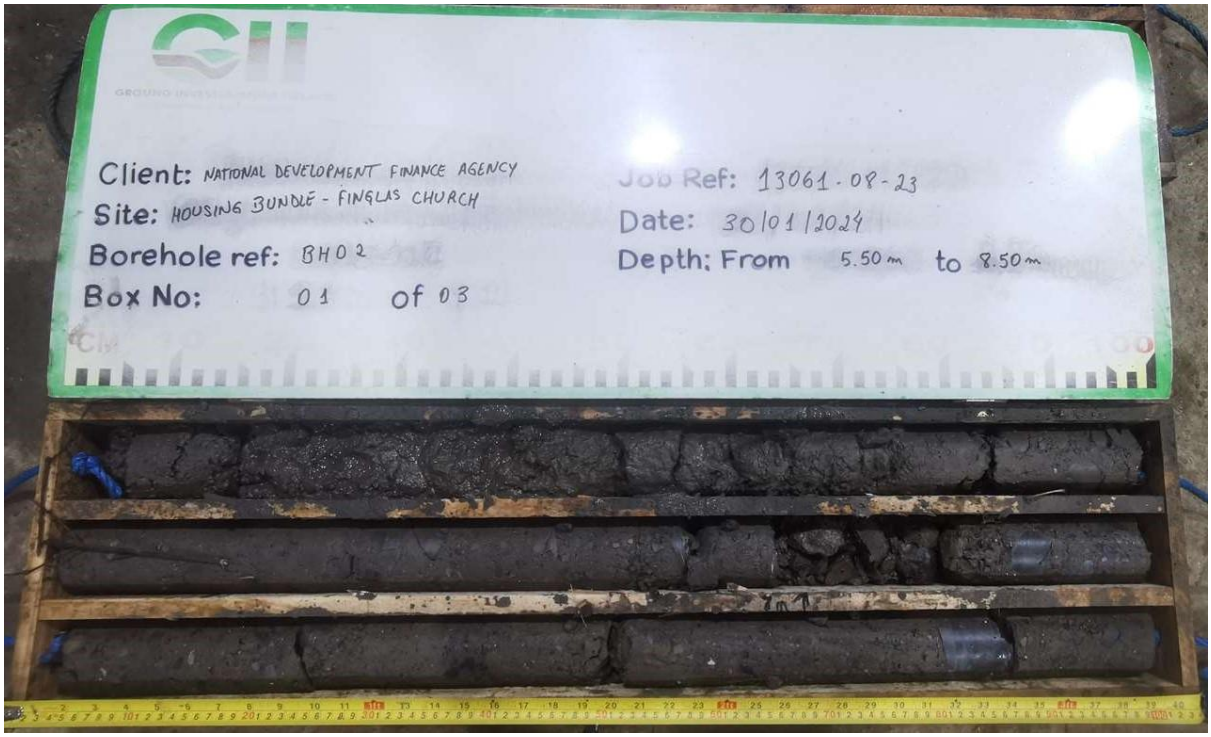
Housing Bundle_ Finglas Church_ Rotary Core Photos

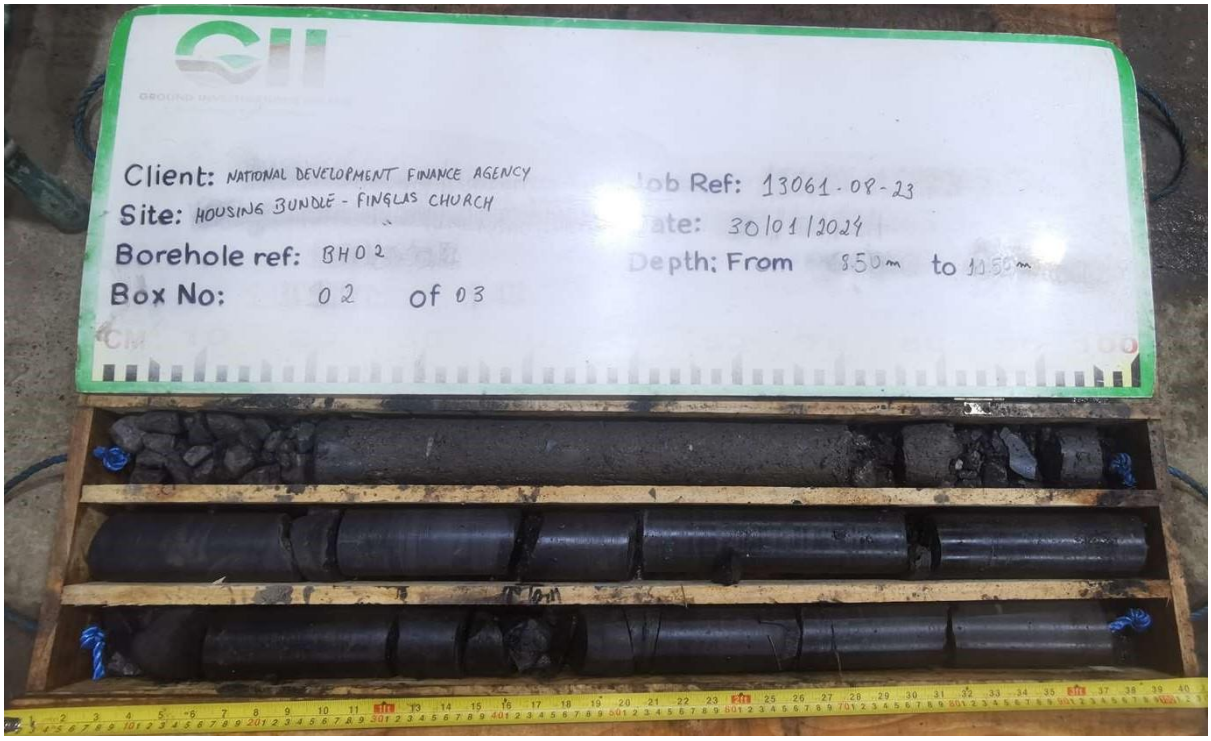




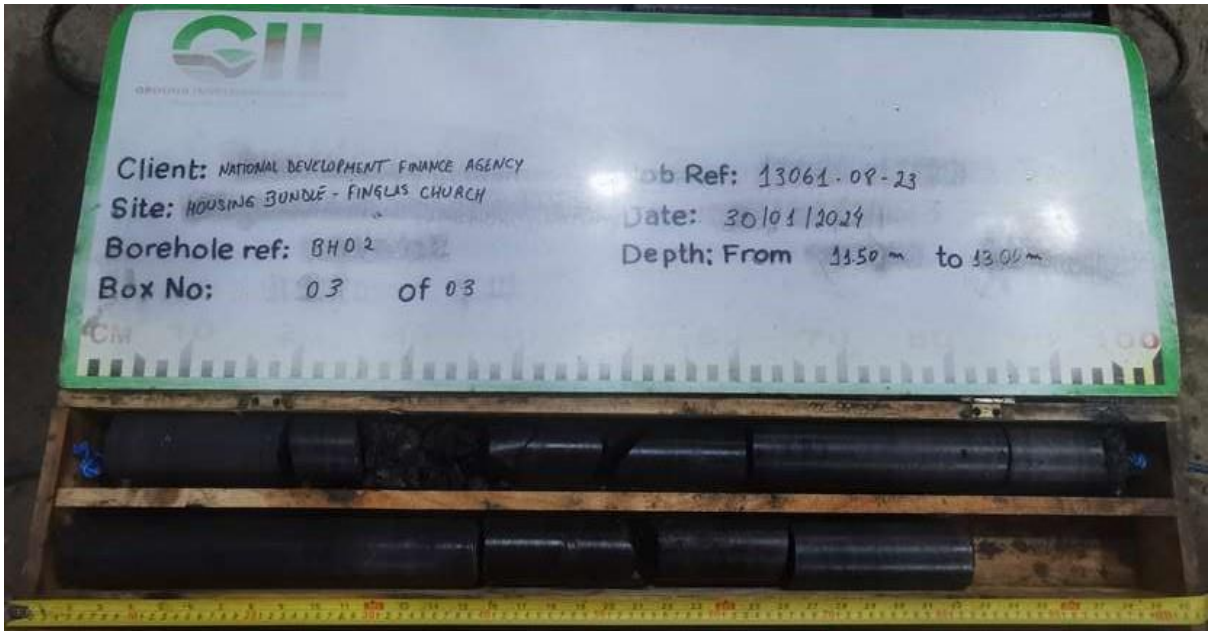
Housing Bundle_ Finglas Church_ Rotary Core Photos

BH02





Housing Bundle_ Finglas Church_ Rotary Core Photos



APPENDIX 6 – Laboratory Testing

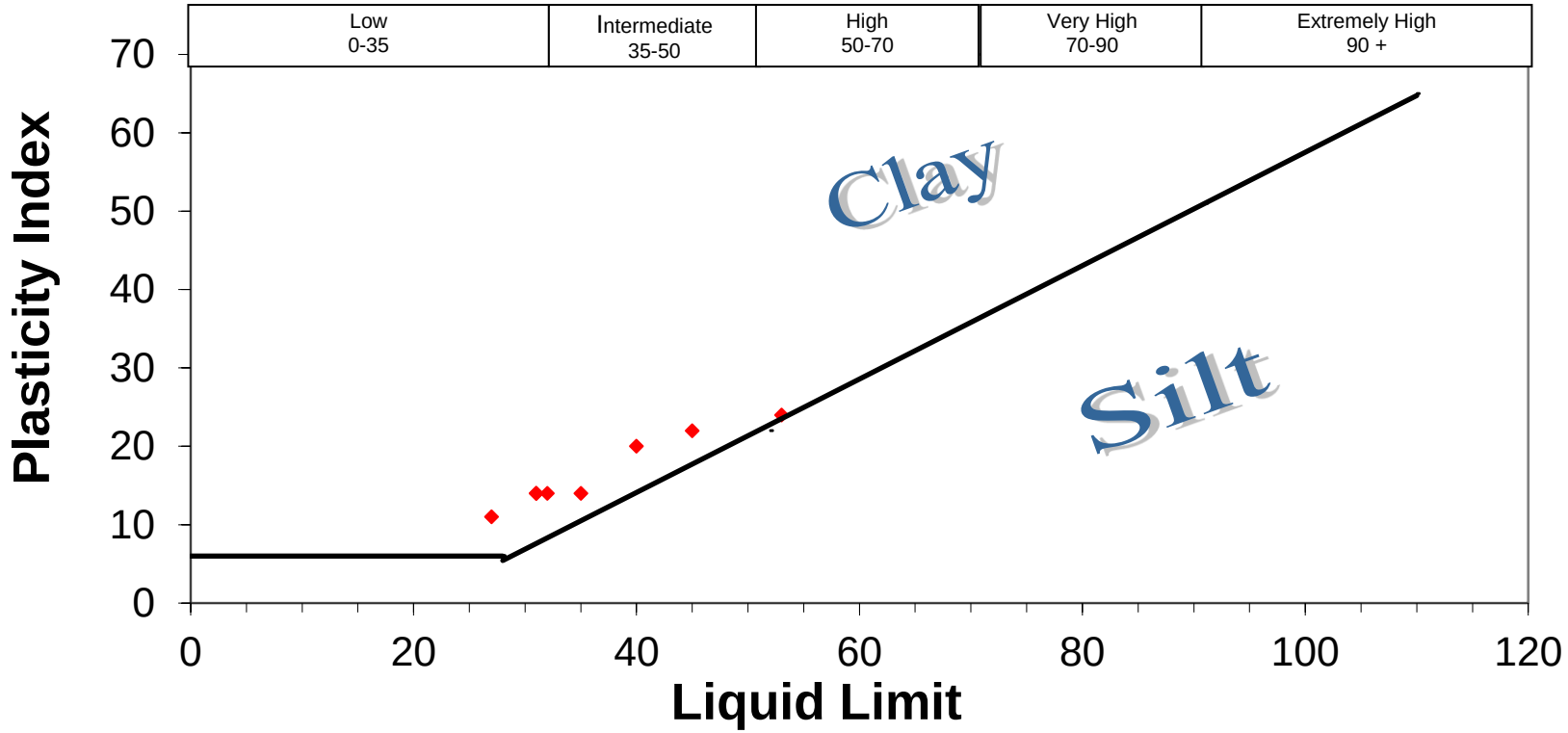
National Materials Testing Laboratory Ltd.

SUMMARY OF TEST RESULTS

				Particle			Index Properties		Bulk	Cell	Undrained Triaxial Tests		Lab	
BH/TP	Depth	sample	Moisture	Density	<425um	LL	PL	PI	Density	Presssure	Compressive	Strain at	Vane	Remarks
No	m	No.	%	Mg/m3	%	%	%	%	Mg/m3	kPa	Stress kPa	Failure %	kPa	
TP01	0.50	B	34.9		64.0	53	29	24						
TP01	2.00	B	13.8		55.8	31	17	14						
TP02	2.00	B	21.4		48.6	40	20	20						
TP03	1.00	B	25.2		60.3	45	23	22						
TP03	3.00	B	11.2		40.3	31	17	14						
BH01	1.00	B	14.5		38.4	32	18	14						
BH02	3.00	B	13.2		59.6	27	15	11						
BH03	1.00	B	14.7		51.7	35	2	14						
NMTL		Notes :									Job ref No.	NMTL 3695	GII Project ID:	13061-08-23(1)
		1. All BS tests carried out using preferred (definitive) method unless otherwise stated.									Location	Housing Bundle 4 & 5 - Finglas Church-Lot 2		

NMTL LTD
Unit 18c, Tullow Industrial Estate
Tullow
County Carlow
Tel: 00353 59 9180822
Mob: 00353 872575508
billa@nmtl.ie

Contract:	**Housing Bundle 4 & 5 - Finglas Church-Lot 2**		
Client:	**Ground Investigations Ireland ltd**		
Engineer:	**Diardmaid Maglochlainn**		
GII Project ID	**13061-08-23(1)**		
Date:	**21/02/2024**		
Tested By:	**Js**	**Checked:**	**Bc**
Job ref No.	**NMTL 3695**		



NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	100.0
28.000	96.6
20.000	93.6
14.000	89.6
10.000	86.3
6.300	81.7
5.000	79.4
3.350	76.5
2.000	73.0
1.180	69.7
0.600	65.8
0.425	64.0
0.300	61.9
0.212	59.9
0.150	56.9
0.063	50.7
0.054	49.0
0.039	43.6
0.020	32.6
0.011	22.4
0.008	17.0
0.005	13.1
0.004	9.9
0.002	7.1

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
7.1		43.6			22.3			27.0		0.0	0.0

Sample Description	Dark brown slightly sandy slightly gravelly silty CLAY.			Project No.	NMTL 3695
				BH/TP No.	TP01
Project	Housing Bundle 4 & 5-Finglas Church lot 2		GII PROJECT ID:13061-08-23(1)	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 15/02/2024	Depth	0.50m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	97.1
28.000	93.4
20.000	90.8
14.000	82.9
10.000	78.2
6.300	73.3
5.000	71.5
3.350	69.4
2.000	65.8
1.180	62.2
0.600	58.0
0.425	55.8
0.300	53.6
0.212	51.2
0.150	48.9
0.063	44.2
0.052	42.4
0.038	38.6
0.019	32.8
0.010	27.5
0.007	23.5
0.005	20.9
0.004	18.2
0.002	12.9

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
12.9		31.3			21.6			34.2		0.0	0.0

Sample Description	Brown slightly sandy slightly gravelly silty CLAY.			Project No.	NMTL 3695
				BH/TP No.	TP01
Project	Housing Bundle 4 & 5-Finglas Church lot 2		GII PROJECT ID:13061-08-23(1)	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 15/02/2024	Depth	2.00m

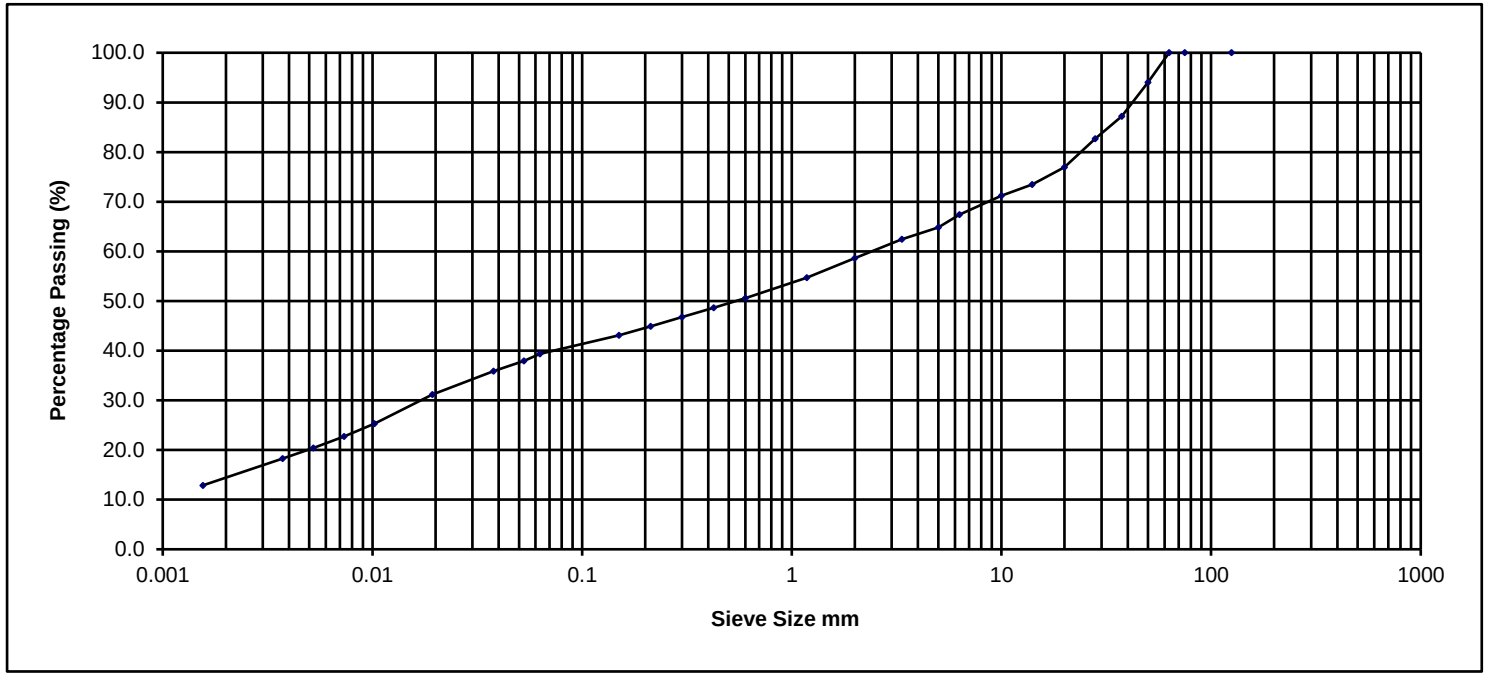
NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	94.0
37.500	87.2
28.000	82.7
20.000	77.0
14.000	73.5
10.000	71.2
6.300	67.4
5.000	64.8
3.350	62.4
2.000	58.6
1.180	54.7
0.600	50.6
0.425	48.6
0.300	46.8
0.212	44.9
0.150	43.1
0.063	39.4
0.053	37.9
0.038	35.8
0.019	31.2
0.010	25.3
0.007	22.7
0.005	20.4
0.004	18.3
0.002	12.9



Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
12.9		26.5			19.3			41.4		0.0	0.0

Sample Description	Brown slightly sandy gravelly silty CLAY.			Project No.	NMTL 3695
				BH/TP No.	TP02
Project	Housing Bundle 4 & 5-Finglas Church lot 2		GII PROJECT ID:13061-08-23(1)	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 15/02/2024	Depth	2.00m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	100.0
28.000	95.5
20.000	91.3
14.000	87.9
10.000	85.8
6.300	81.7
5.000	78.9
3.350	76.7
2.000	71.8
1.180	67.5
0.600	62.7
0.425	60.3
0.300	57.9
0.212	55.3
0.150	52.8
0.063	47.8
0.052	46.5
0.037	43.3
0.019	36.5
0.010	30.4
0.007	26.3
0.005	23.6
0.004	21.0
0.002	14.8

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
14.8		33.1			23.9			28.2		0.0	0.0

Sample Description	Dark brown slightly sandy slightly gravelly silty CLAY.					Project No.	NMTL 3695
						BH/TP No.	TP03
Project	Housing Bundle 4 & 5-Finglas Church lot 2			GII PROJECT ID:13061-08-23(1)		Sample No.	B
Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	15/02/2024	Depth	1.00m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	93.6
63.000	89.3
50.000	84.9
37.500	82.3
28.000	78.5
20.000	76.0
14.000	70.2
10.000	65.7
6.300	61.1
5.000	58.8
3.350	56.7
2.000	52.5
1.180	48.1
0.600	42.8
0.425	40.3
0.300	37.7
0.212	35.0
0.150	32.6
0.063	27.9
0.052	26.5
0.037	24.4
0.019	20.0
0.010	16.0
0.007	14.0
0.005	12.5
0.004	11.1
0.002	8.9

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
8.9		19.0			24.7			36.8		10.7	0.0

Sample Description	Dark grey/brown slightly sandy gravelly silty CLAY.					Project No.	NMTL 3695
						BH/TP No.	TP03
Project	Housing Bundle 4 & 5-Finglas Church lot 2			GII PROJECT ID:13061-08-23(1)		Sample No.	B
Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	15/02/2024	Depth	3.00m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	100.0
28.000	98.1
20.000	96.9
14.000	95.3
10.000	92.1
6.300	86.8
5.000	83.5
3.350	79.9
2.000	74.1
1.180	68.5
0.600	62.5
0.425	59.6
0.300	56.7
0.212	53.7
0.150	50.5
0.063	43.5
0.054	42.1
0.038	38.9
0.020	32.1
0.010	27.3
0.007	23.6
0.005	21.0
0.004	17.9
0.002	12.8

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
12.8		30.7			30.6			25.9		0.0	0.0

Sample Description	Dark brown slightly gravelly slightly sandy silty CLAY.					Project No.	NMTL 3695
						BH/TP No.	BH02
Project	Housing Bundle 4 & 5-Finglas Church lot 2			GII PROJECT ID:13061-08-23(1)		Sample No.	B
Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	15/02/2024	Depth	3.00m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	89.5
37.500	81.6
28.000	73.2
20.000	68.1
14.000	60.1
10.000	56.3
6.300	52.1
5.000	50.1
3.350	48.4
2.000	45.7
1.180	43.0
0.600	39.9
0.425	38.4
0.300	36.8
0.212	35.3
0.150	33.8
0.063	30.5
0.052	29.7
0.037	28.0
0.019	23.3
0.010	19.8
0.007	17.2
0.005	15.7
0.004	13.3
0.002	9.2

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
9.2		21.2			15.2			54.3		0.0	0.0

Sample Description	Dark brown slightly sandy gravelly silty CLAY.					Project No.	NMTL 3695
						BH/TP No.	BH01
Project	Housing Bundle 4 & 5-Finglas Church lot 2			GII PROJECT ID:13061-08-23(1)		Sample No.	B
Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	15/02/2024	Depth	1.00m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	92.1
37.500	85.4
28.000	80.7
20.000	78.0
14.000	75.2
10.000	73.4
6.300	69.9
5.000	67.5
3.350	65.6
2.000	61.4
1.180	57.9
0.600	53.8
0.425	51.7
0.300	49.6
0.212	47.5
0.150	45.4
0.063	41.1
0.052	39.2
0.038	36.5
0.019	31.6
0.010	26.6
0.007	23.8
0.005	20.3
0.004	17.8
0.002	13.4

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
13.4		27.7			20.4			38.6		0.0	0.0

Sample Description	Light brown slightly sandy gravelly silty CLAY.			Project No.	NMTL 3695
				BH/TP No.	BH03
Project	Housing Bundle 4 & 5-Finglas Church lot 2		GII PROJECT ID:13061-08-23(1)	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 15/02/2024	Depth	1.00m

NMTL Ltd

LABORATORY REPORT

Contract Number: PSL24/1018

Report Date: 01 March 2024

Client's Reference: 13061-08-23(5)

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

For the attention of: Diarmaid MagLochlainn

Contract Title: Housing Bundle 4&5 - Lot 3 - Finglas Church

Date Received: 8/2/2024
Date Commenced: 8/2/2024
Date Completed: 1/3/2024

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)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

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 sandy gravelly CLAY.
TP02		B	0.50		Brown slightly clayey sandy GRAVEL.
TP02		B	1.00		Brown sandy gravelly CLAY.
TP02		B	3.00		Brown sandy gravelly CLAY.
TP03		B	0.50		Brown sandy slightly gravelly CLAY.
TP03		B	2.00		Brown sandy gravelly CLAY.
BH02		B	1.00		Brown sandy gravelly CLAY.
BH04		B	1.00		Brown sandy gravelly CLAY.
BH07		B	1.00		Brown clayey sandy GRAVEL.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Housing Bundle 4 & 5 - Lot 2 - Finglas Church

Contract No: PSL24/1018

Client Ref: 13061-08-23(5)

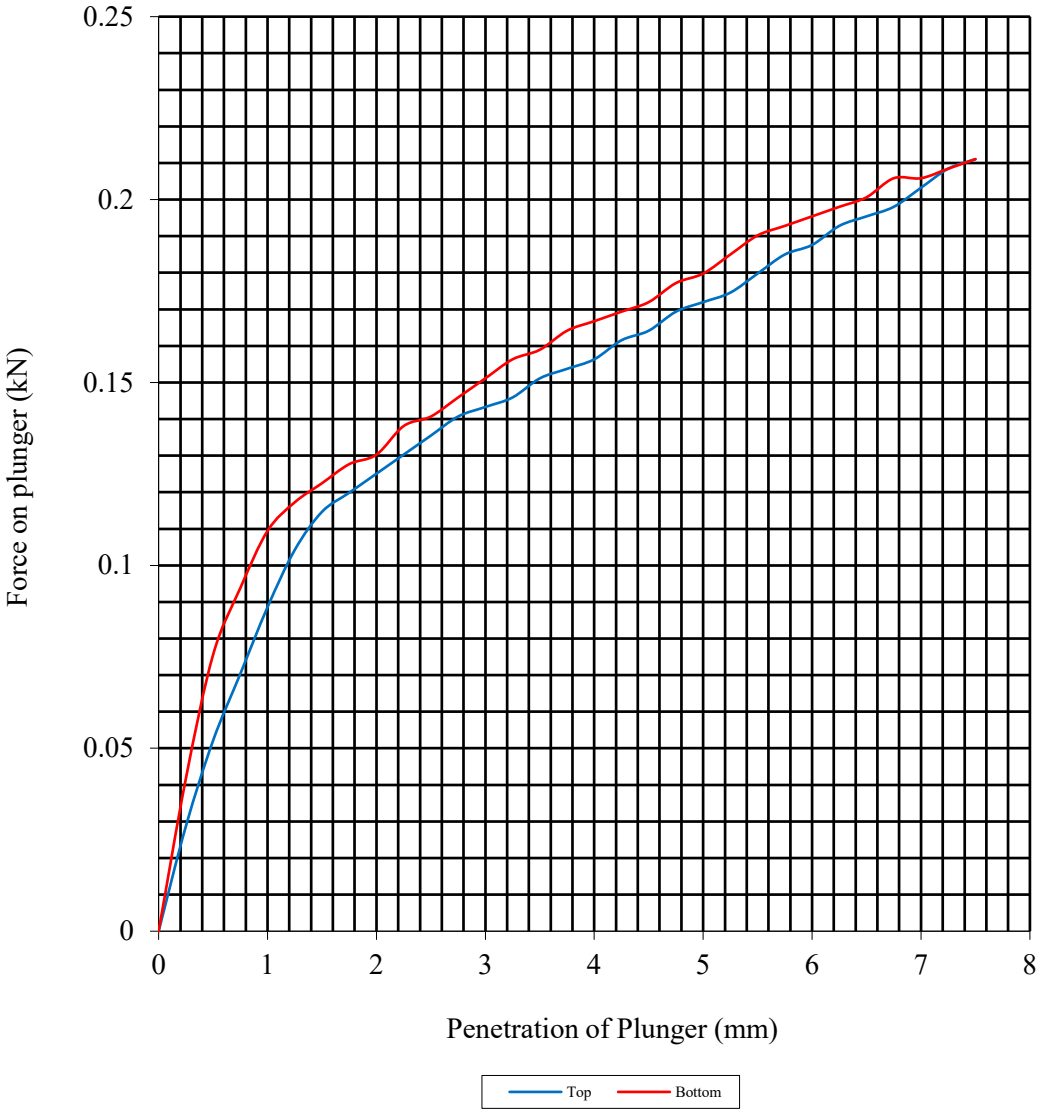
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP01 **Top Depth (m):** 1.00

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

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	20	Surcharge Kg:	4.20	Sample Top	20	Sample Top	1.0
Bulk Density Mg/m3:	2.13	Soaking Time hrs	0	Sample Bottom	20	Sample Bottom	1.1
Dry Density Mg/m3:	1.78	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			9				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Housing Bundle 4 & 5 - Lot 2 - Finglas Church

Contract No: PSL24/1018

Client Ref: 13061-08-23(5)

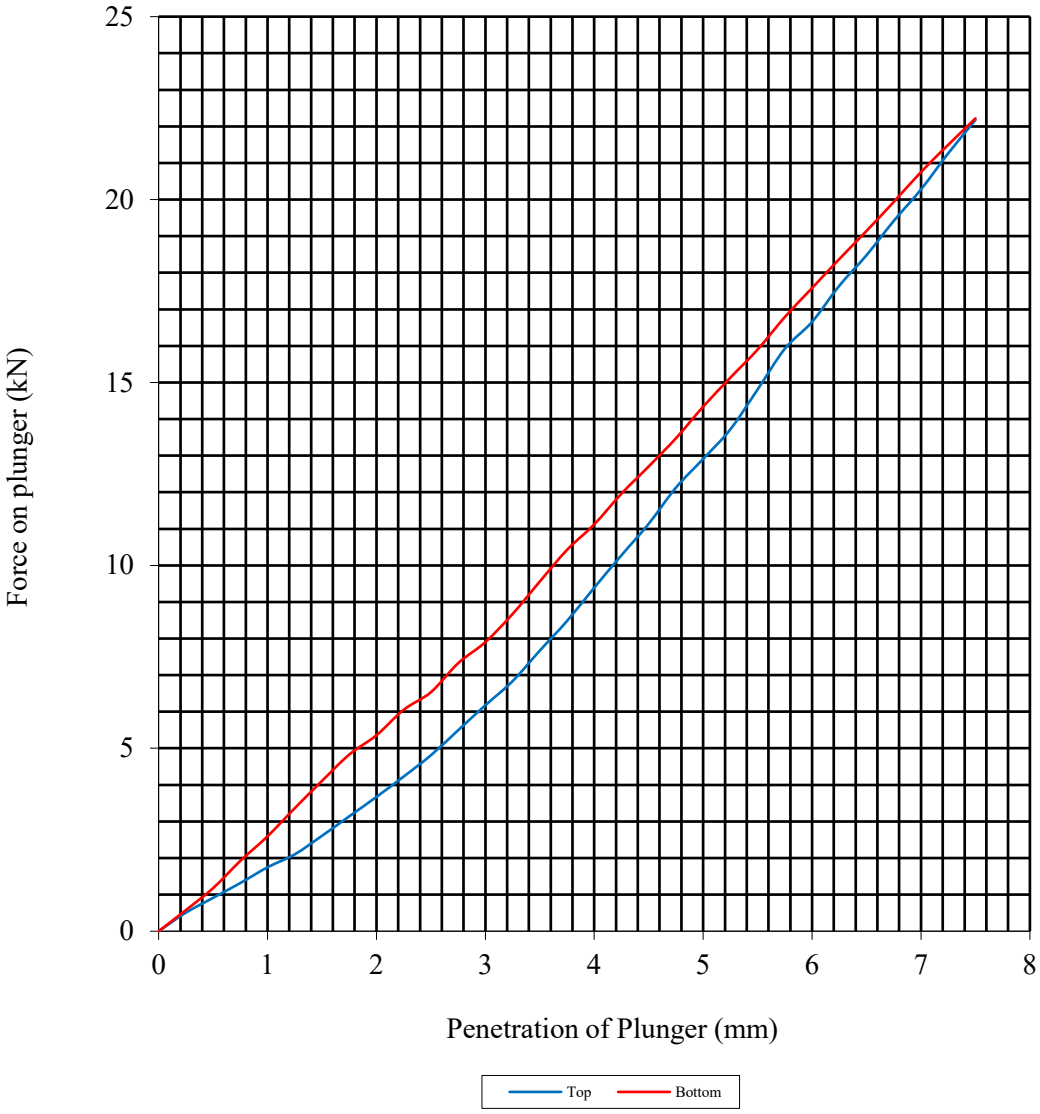
CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

Hole Number: TP02 **Top Depth (m):** 0.50

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

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	17	Surcharge Kg:	4.20	Sample Top	17	Sample Top	64.6
Bulk Density Mg/m3:	2.12	Soaking Time hrs	0	Sample Bottom	17	Sample Bottom	71.7
Dry Density Mg/m3:	1.81	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			38				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Housing Bundle 4 & 5 - Lot 2 - Finglas Church

Contract No: PSL24/1018

Client Ref: 13061-08-23(5)

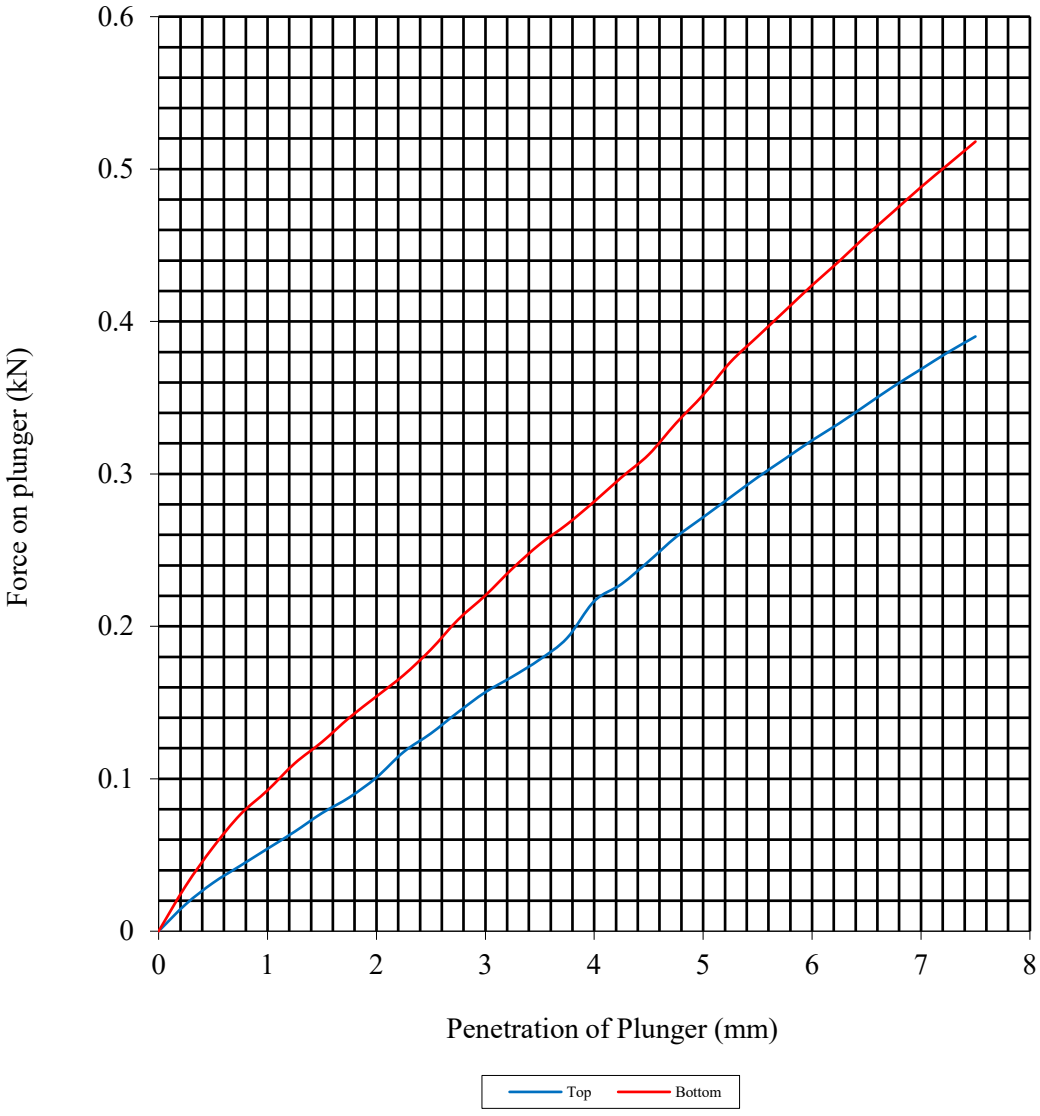
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP03 **Top Depth (m):** 0.50

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

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	33	Surcharge Kg:	4.20	Sample Top	33	Sample Top	1.4
Bulk Density Mg/m3:	1.91	Soaking Time hrs	0	Sample Bottom	33	Sample Bottom	1.8
Dry Density Mg/m3:	1.43	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			1				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Housing Bundle 4 & 5 - Lot 2 - Finglas Church

Contract No: PSL24/1018

Client Ref: 13061-08-23(5)

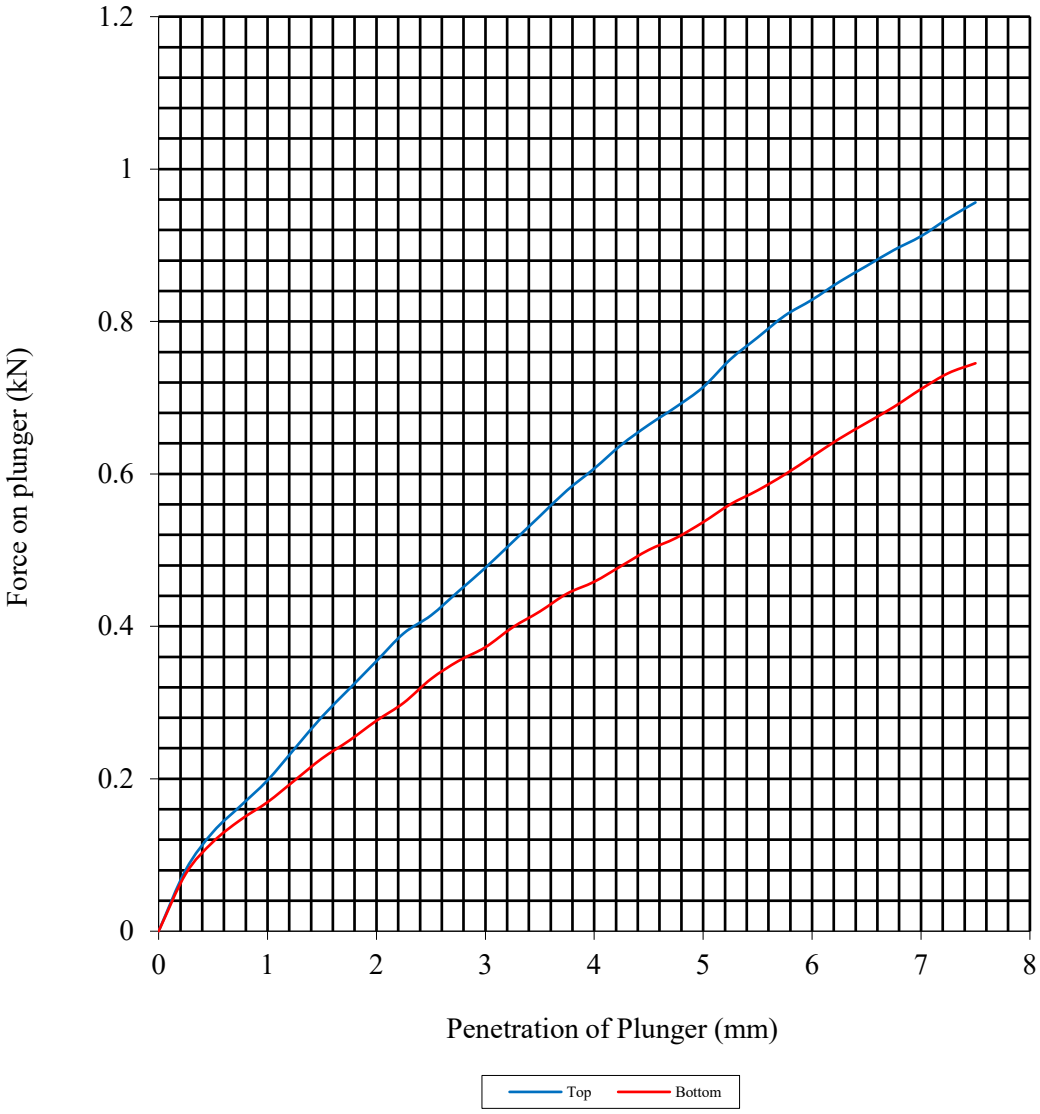
CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

Hole Number: BH07 **Top Depth (m):** 1.00

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

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	14	Surcharge Kg:	4.20	Sample Top	14	Sample Top	3.6
Bulk Density Mg/m3:	2.26	Soaking Time hrs	0	Sample Bottom	14	Sample Bottom	2.7
Dry Density Mg/m3:	1.98	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			52				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Housing Bundle 4 & 5 - Lot 2 - Finglas Church

Contract No: PSL24/1018

Client Ref: 13061-08-23(5)

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**TP02**	**Top Depth (m):**	**1.00**
Sample Number:		**Base Depth (m):**	
Sample Type:	**B**	**Sample Date:**	
Sample Description:	**See summary of soil descriptions**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.85
Moisture Content (%)	32
Dry Density (Mg/m3)	1.41
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**27.897 Ohms.m**

DETERMINATION OF THE REDOX POTENTIAL OF SOIL

BS 1377 : Part 3: 1990, Clause 11

pH of sample:	8.5
Reading A (mV)	211
Reading B (mV)	212
Temperature of specimen at time of test (^{o}C)	NA
Testing Method.	Calomel Reference Probe
Redox Potential (mV)	**550**

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**TP02**	**Top Depth (m):**	**3.00**
Sample Number:		**Base Depth (m):**	
Sample Type:	**B**	**Sample Date:**	
Sample Description:	**See summary of soil descriptions**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	2.07
Moisture Content (%)	18
Dry Density (Mg/m3)	1.75
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**24.127 Ohms.m**

DETERMINATION OF THE REDOX POTENTIAL OF SOIL

BS 1377 : Part 3: 1990, Clause 11

pH of sample:	8.5
Reading A (mV)	197.1
Reading B (mV)	197.1
Temperature of specimen at time of test (^{o}C)	NA
Testing Method.	Calomel Reference Probe
Redox Potential (mV)	**540**

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**TP03**	**Top Depth (m):**	**2.00**
Sample Number:		**Base Depth (m):**	
Sample Type:	**B**	**Sample Date:**	
Sample Description:	**See summary of soil descriptions**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	2.17
Moisture Content (%)	15
Dry Density (Mg/m3)	1.88
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**36.819 Ohms.m**

DETERMINATION OF THE REDOX POTENTIAL OF SOIL

BS 1377 : Part 3: 1990, Clause 11

pH of sample:	8.5
Reading A (mV)	197
Reading B (mV)	197
Temperature of specimen at time of test (^{o}C)	NA
Testing Method.	Calomel Reference Probe
Redox Potential (mV)	**540**

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH02**	**Top Depth (m):**	**1.00**
Sample Number:		**Base Depth (m):**	
Sample Type:	**B**	**Sample Date:**	
Sample Description:	**See summary of soil descriptions**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	2.10
Moisture Content (%)	19
Dry Density (Mg/m3)	1.77
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**20.935 Ohms.m**

DETERMINATION OF THE REDOX POTENTIAL OF SOIL

BS 1377 : Part 3: 1990, Clause 11

pH of sample:	8.5
Reading A (mV)	186
Reading B (mV)	186
Temperature of specimen at time of test (^{o}C)	NA
Testing Method.	Calomel Reference Probe
Redox Potential (mV)	**530**

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH04**	**Top Depth (m):**	**1.00**
Sample Number:		**Base Depth (m):**	
Sample Type:	**B**	**Sample Date:**	
Sample Description:	**See summary of soil descriptions**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	2.06
Moisture Content (%)	20
Dry Density (Mg/m3)	1.72
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**28.023 Ohms.m**

DETERMINATION OF THE REDOX POTENTIAL OF SOIL

BS 1377 : Part 3: 1990, Clause 11

pH of sample:	8.5
Reading A (mV)	206
Reading B (mV)	206
Temperature of specimen at time of test (^{o}C)	NA
Testing Method.	Calomel Reference Probe
Redox Potential (mV)	**550**

CMTL Ireland Limited
Unit D, Zone 5, Clonminam Business Park
Portlaoise, Co. Laois R32 W30Y
Tel: 057 8664885

CONSTRUCTION MATERIALS TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Test Report
Point Load Strength Index

Project :	Housing Bundle 4 & 5 - Finglas Church - Lot 2	**Job Number**	13061-08-23(1)
Client :	Ground Investigations Ireland	**Lab Ref No**	ST 27604
	Catherinestown House, Hazelhatch Road	**Date Received**	19/02/2024
	Newcastle, Co. Dublin	**Date Tested**	23/02/2024
Originator :	Conor Finnerty	**Date Reported**	26/02/2024

Point Load Strength Index

Sample No:-	Depth (m)	Description	Type	Orientation	W (mm)	D (mm)	P (kN)	A	De (mm)	I_s	F	$I_{s(50)}$MN/m²
BH01	12.17-12.30	1,2	D	⊥	63.0	64.0	15.00	4032	64.0	3.662	1.12	4.09
BH02	10.00-10.10	1	D	⊥	63.0	63.0	22.00	3969	63.0	5.543	1.11	6.15

Description 1 : Black/Grey
Description 2 : White Veins

$I_{s(50)}$MN/m² for	Description 1,2	
Min	4.09	
Mean	5.12	
Max	6.15	

Test
A = axial
D = diametrical

Relationship to planes of weakness
IL = irregular lump
II = parallel
⊥ = perpendicular

	Mean Value $I_{s(50)}$MN/m²	U.C.S. MN/m²
Extremely Weak	<0.05	0.6-1.0
Very Weak	0.05-0.20	1.0-5.0
Weak	0.20-0.50	5.0-25.0
Medium Strong	0.50-2.00	25-50
Strong	2.00-4.50	50-100
Very Strong	4.50-9.00	100-250
Extremely Strong	9.00 +	>250

JRWard
Approved Signature
James Ward, Operations Manager
CMTL Ireland Limited

CMTL Ireland Limited
Unit D, Zone 5, Clonminam Business Park
Portlaoise, Co. Laois R32 W30Y
Tel: 057 8664885

CMTL
CONSTRUCTION MATERIALS TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Test Report
Uniaxial Compressive Strength

Project:	Housing Bundle 4 & 5 - Finglas Church - Lot 2	**Job Number**	13061-08-23(1)
Client:	Ground Investigations Ireland	**Lab Ref No**	ST 27605
	Catherinestown House, Hazelhatch Road	**Date Received**	19/02/2024
	Newcastle. Co. Dublin	**Date Tested**	23/02/2024
Originator:	Conor Finnerty	**Date Reported**	26/02/2024

Sample Reference	Moisture Content	Density (Mg/m^3)	Uniaxial Compressive Strength (N/mm^2)
BH01 14.00-14.40	2.0	2685	88.2
BH02 10.10-10.36	1.3	2675	106.4

Remarks: None

JRWard

Approved Signature
James Ward, Operations Manager
CMTL Ireland Limited

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Ground Investigations Ireland
Catherinestown House
Hazelhatch Road
Newcastle
Co. Dublin
Ireland
D22 K5P8

Attention :	Diarmaid MagLochlainn
Date :	6th December, 2023
Your reference :	13061-08-23
Our reference :	Test Report 23/19933 Batch 1
Location :	Housing Bundle- Finglas Church
Date samples received :	27th November, 2023
Status :	Final Report
Issue :	202312061022

Fourteen samples were received for analysis on 27th November, 2023 of which fourteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 65.739 kg of CO2

Scope 1&2&3 emissions - 155.359 kg of CO2

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-03	BH-01	BH-02	BH-02	BH-03			
Depth	0.50	1.00	0.50	1.00	0.50	2.00	1.00	1.00	2.00	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023			
Antimony	2	2	1	3	3	2	<1	1	1	3	<1	mg/kg	TM30/PM15
Arsenic #	16.5	12.8	8.3	17.5	17.3	12.3	5.6	10.6	8.6	11.2	<0.5	mg/kg	TM30/PM15
Barium #	135	92	61	140	139	45	39	52	53	310	<1	mg/kg	TM30/PM15
Cadmium #	2.7	2.3	0.7	2.2	2.8	1.9	1.2	1.9	1.5	2.4	<0.1	mg/kg	TM30/PM15
Chromium #	31.3	17.4	32.0	30.2	26.6	15.3	12.5	15.5	19.5	20.2	<0.5	mg/kg	TM30/PM15
Copper #	52	37	24	49	52	27	13	28	21	30	<1	mg/kg	TM30/PM15
Lead #	91	19	92	241	113	20	13	15	15	18	<5	mg/kg	TM30/PM15
Mercury #	0.2	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	3.4	3.5	1.0	4.0	4.6	3.8	1.6	2.7	2.9	7.8	<0.1	mg/kg	TM30/PM15
Nickel #	49.3	51.0	18.1	50.7	61.0	38.9	14.9	36.1	34.6	45.2	<0.7	mg/kg	TM30/PM15
Selenium #	2	<1	<1	2	2	1	<1	<1	3	5	<1	mg/kg	TM30/PM15
Zinc #	103	89	59	124	135	75	49	66	62	76	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.15	<0.03	0.08	<0.03	0.18	<0.03	<0.03	<0.03	0.06	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.14	<0.03	0.10	<0.03	0.43	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	0.13	<0.03	0.09	<0.03	0.35	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.10	<0.06	0.08	<0.06	0.26	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	0.10	<0.02	0.06	<0.02	0.28	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.13	<0.07	0.09	<0.07	0.44	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.08	<0.04	0.04	<0.04	0.27	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	0.17	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	0.16	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	0.35	<0.22	0.23	<0.22	1.47	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	0.83	<0.64	<0.64	<0.64	2.60	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.09	<0.05	0.06	<0.05	0.32	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.04	<0.02	0.03	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	104	105	104	68	90	98	84	95	96	97	<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	<30	<30	<30	<30	<30	<30	321	<30	<30	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-03	BH-01	BH-02	BH-02	BH-03			
Depth	0.50	1.00	0.50	1.00	0.50	2.00	1.00	1.00	2.00	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023			
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL)#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	12.0	0.8	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	<4	<4	<4	<4	<4	<4	<4	75	6	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	<7	<7	<7	<7	<7	<7	<7	174	11	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	<7	<7	<7	<7	<7	<7	<7	60	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	<26	<26	<26	<26	<26	<26	<26	321	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	<10	<10	<10	<10	<10	<10	<10	312	18	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	<4	<4	<4	<4	<4	<4	<4	17	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	<7	<7	<7	<7	<7	<7	<7	76	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	38	<7	<7	<7	<7	<7	<7	29	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	10	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_CU_1D_AR)	48	<26	<26	<26	<26	<26	<26	122	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	<52	<52	<52	<52	<52	<52	<52	443	<52	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	<10	<10	<10	<10	<10	<10	<10	120	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	38	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE#	<5	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Benzene#	<5	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Toluene#	<5	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Ethylbenzene#	<5	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
m/p-Xylene#	15	<5	<5	<5	<5	<5	<5	6	<5 SV	<5	<5	ug/kg	TM36/PM12
o-Xylene#	10	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
PCB 28#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs#	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-03	BH-01	BH-02	BH-02	BH-03			
Depth	0.50	1.00	0.50	1.00	0.50	2.00	1.00	1.00	2.00	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023			
Natural Moisture Content	27.6	20.1	11.3	32.5	29.3	13.4	6.0	13.3	7.3	14.4	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	21.6	16.7	10.1	24.5	22.6	11.8	5.6	11.8	6.8	12.6	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0735	-	0.0399	0.0209	-	0.0057	-	0.0151	-	0.0049	<0.0015	g/l	TM38/PM20
Chromium III	31.3	17.4	32.0	30.2	26.6	15.3	12.5	15.5	19.5	20.2	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	3.75	0.47	0.32	1.87	1.39	0.46	0.28	0.27	0.48	0.69	<0.02	%	TM21/PM24
Organic Matter	6.5	-	0.6	-	-	0.8	-	0.5	-	1.2	<0.2	%	TM21/PM24
pH #	7.67	8.68	11.35	8.76	8.57	8.74	9.45	8.44	8.24	8.65	<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD		None	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56							LOD/LOR	Units	Method No.
Sample ID	BH-04	BH-04	BH-05	BH-07									
Depth	1.00	2.00	0.50	1.00									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023									
Antimony	2	2	3	2							<1	mg/kg	TM30/PM15
Arsenic #	13.4	9.9	15.1	13.6							<0.5	mg/kg	TM30/PM15
Barium #	69	51	124	91							<1	mg/kg	TM30/PM15
Cadmium #	2.4	2.1	1.9	1.8							<0.1	mg/kg	TM30/PM15
Chromium #	18.2	17.3	22.8	42.0							<0.5	mg/kg	TM30/PM15
Copper #	41	27	61	35							<1	mg/kg	TM30/PM15
Lead #	18	16	133	23							<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	0.4	<0.1							<0.1	mg/kg	TM30/PM15
Molybdenum #	4.4	3.1	3.3	3.0							<0.1	mg/kg	TM30/PM15
Nickel #	50.8	39.9	42.1	54.7							<0.7	mg/kg	TM30/PM15
Selenium #	1	1	1	1							<1	mg/kg	TM30/PM15
Zinc #	95	75	114	98							<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	0.05	<0.04							<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03							<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05							<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	0.17	<0.03							<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	0.31	<0.03							<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	0.27	<0.03							<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	0.19	<0.06							<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	0.20	<0.02							<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	0.30	<0.07							<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	0.19	<0.04							<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	0.11	<0.04							<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	0.11	<0.04							<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	1.02	<0.22							<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	1.90	<0.64							<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	0.22	<0.05							<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	0.08	<0.02							<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1							<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	97	75	97	90							<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	<30	<30	<30 SV							<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56									
Sample ID	BH-04	BH-04	BH-05	BH-07									
Depth	1.00	2.00	0.50	1.00									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL)#	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	<0.2	<0.2	<0.2	<0.2 SV							<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	<4	<4	<4	<4 SV							<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	<7	<7	<7	<7 SV							<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	<7	<7	<7	<7 SV							<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7	<7	<7	<7 SV							<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	<26	<26	<26	<26 SV							<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	<10	<10	<10	<10 SV							<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	<10	<10	<10	<10 SV							<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	<0.2	<0.2	<0.2	<0.2 SV							<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	<4	<4	<4	<4 SV							<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	<7	<7	<7	<7 SV							<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	<7	<7	<7	35 SV							<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	<7	<7	<7	12 SV							<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_CU_1D_AR)	<26	<26	<26	47 SV							<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	<52	<52	<52	<52 SV							<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR)#	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	<10	<10	<10	<10 SV							<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	<10	<10	<10	35 SV							<10	mg/kg	TM5/PM8/PM16
MTBE#	<5	<5	<5	<5							<5	ug/kg	TM36/PM12
Benzene#	<5	<5	<5	<5							<5	ug/kg	TM36/PM12
Toluene#	<5	<5	<5	<5							<5	ug/kg	TM36/PM12
Ethylbenzene#	<5	<5	<5	<5							<5	ug/kg	TM36/PM12
m/p-Xylene#	<5	<5	<5	<5							<5	ug/kg	TM36/PM12
o-Xylene#	<5	<5	<5	<5							<5	ug/kg	TM36/PM12
PCB 28#	<5	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 52#	<5	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 101#	<5	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 118#	<5	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 138#	<5	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 153#	<5	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 180#	<5	<5	<5	<5							<5	ug/kg	TM17/PM8
Total 7 PCBs#	<35	<35	<35	<35							<35	ug/kg	TM17/PM8

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56									
Sample ID	BH-04	BH-04	BH-05	BH-07									
Depth	1.00	2.00	0.50	1.00									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Natural Moisture Content	14.2	12.0	23.8	21.8							<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	12.4	10.7	19.2	17.9							<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3							<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0129	-	0.0036	-							<0.0015	g/l	TM38/PM20
Chromium III	18.2	17.3	22.8	42.0							<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.41	0.37	2.59	0.75							<0.02	%	TM21/PM24
Organic Matter	0.7	-	4.5	-							<0.2	%	TM21/PM24
pH #	8.54	8.64	8.35	8.40							<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	NAD	NAD	NAD								None	Subcontracted

Please include all sections of this report if it is reproduced
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Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-03	BH-01	BH-02	BH-02	BH-03			
Depth	0.50	1.00	0.50	1.00	0.50	2.00	1.00	1.00	2.00	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.029	0.004	0.026	0.007	0.007	<0.003	<0.003	0.010	0.026	0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.29	0.04	0.26	0.07	0.07	<0.03	<0.03	0.10	0.26	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	0.0236	0.0084	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	0.236	0.084	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.008	0.006	<0.002	0.012	0.007	0.010	0.023	0.015	0.021	0.008	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.08	0.06	<0.02	0.12	0.07	0.10	0.23	0.15	0.21	0.08	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.033	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.33	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	0.03	<0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	0.3	<0.3	0.6	0.4	<0.3	<0.3	0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	3	<3	6	4	<3	<3	3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	18.7	1.9	19.7	5.9	<0.5	0.6	6.5	5.1	30.7	<0.5	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	187	19	197	59	<5	6	65	51	307	<5	<5	mg/kg	TM38/PM0
Mass of raw test portion	0.1201	0.1078	0.1074	0.1321	0.1198	0.1026	0.1049	0.1099	0.1004	0.1047		kg	NONE/PM17
Chloride #	3.7	1.0	0.6	<0.3	<0.3	<0.3	0.4	0.5	9.5	0.5	<0.3	mg/l	TM38/PM0
Chloride #	37	10	6	<3	<3	<3	4	5	95	5	<3	mg/kg	TM38/PM0
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17
Dissolved Organic Carbon	4	<2	4	<2	<2	<2	<2	3	<2	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	40	<20	40	<20	<20	<20	<20	30	<20	<20	<20	mg/kg	TM60/PM0
pH	8.23	8.18	11.14	8.40	8.30	8.11	8.09	8.09	8.03	8.11	<0.01	pH units	TM73/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-03	BH-01	BH-02	BH-02	BH-03			
Depth	0.50	1.00	0.50	1.00	0.50	2.00	1.00	1.00	2.00	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023			
Total Dissolved Solids #	131	49	140	83	74	44	47	81	107	45	<35	mg/l	TM20/PM0
Total Dissolved Solids #	1309	490	1400	830	740	440	470	810	1070	450	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	41-44	45-48	49-52	53-56							LOD/LOR	Units	Method No.
Sample ID	BH-04	BH-04	BH-05	BH-07									
Depth	1.00	2.00	0.50	1.00									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023									
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002							<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02							<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	<0.0025	<0.0025	<0.0025							<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	<0.025	<0.025							<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.005	0.004	0.007	0.015							<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.05	0.04	0.07	0.15							<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005							<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005							<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015							<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	<0.015	<0.015							<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007							<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07							<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005							<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05							<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.025	0.018	0.007	0.014							<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.25	0.18	0.07	0.14							<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	0.002							<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	0.02							<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003							<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003							<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03							<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001							<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001							<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01							<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	0.5	<0.3							<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	5	<3							<3	mg/kg	TM173/PM0
Sulphate as SO4 #	2.1	2.0	0.6	1.4							<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	21	20	6	14							<5	mg/kg	TM38/PM0
Mass of raw test portion	0.1015	0.1034	0.1138	0.114								kg	NONE/PM17
Chloride #	0.8	0.9	0.6	0.8							<0.3	mg/l	TM38/PM0
Chloride #	8	9	6	8							<3	mg/kg	TM38/PM0
Mass of dried test portion	0.09	0.09	0.09	0.09								kg	NONE/PM17
Dissolved Organic Carbon	<2	<2	3	2							<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	30	20							<20	mg/kg	TM60/PM0
pH	8.02	8.03	8.08	8.16							<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56									
Sample ID	BH-04	BH-04	BH-05	BH-07									
Depth	1.00	2.00	0.50	1.00									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Total Dissolved Solids #	56	46	81	88							<35	mg/l	TM20/PM0
Total Dissolved Solids #	560	460	810	880							<350	mg/kg	TM20/PM0

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40						
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-03	BH-01	BH-02	BH-02	BH-03						
Depth	0.50	1.00	0.50	1.00	0.50	2.00	1.00	1.00	2.00	1.00						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1						
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis																
Total Organic Carbon #	3.75	0.47	0.32	1.87	1.39	0.46	0.28	0.27	0.48	0.69	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025 SV	<0.025	6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	<30	321	<30	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	0.35	<0.22	0.23	<0.22	1.47	<0.22	<0.22	<0.22	<0.22	<0.22	-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	0.83	<0.64	<0.64	<0.64	2.60	<0.64	<0.64	<0.64	<0.64	<0.64	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.29	0.04	0.26	0.07	0.07	<0.03	<0.03	0.10	0.26	<0.03	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	<0.015	<0.015	0.236	0.084	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.08	0.06	<0.02	0.12	0.07	0.10	0.23	0.15	0.21	0.08	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.33	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	0.03	<0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1309	490	1400	830	740	440	470	810	1070	450	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	40	<20	40	<20	<20	<20	<20	30	<20	<20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1201	0.1078	0.1074	0.1321	0.1198	0.1026	0.1049	0.1099	0.1004	0.1047	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	74.7	83.3	83.6	68.1	74.9	87.6	86.2	82.3	89.8	86.1	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.869	0.882	0.882	0.858	0.87	0.887	0.886	0.881	0.89	0.885	-	-	-		l	NONE/PM17
Moisture Content 105C (% Dry Weight)	33.9	20.0	19.7	46.8	33.4	14.1	16.0	21.5	11.4	16.2	-	-	-	<0.1	%	PM4/PM0
pH #	7.67	8.68	11.35	8.76	8.57	8.74	9.45	8.44	8.24	8.65	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	3	<3	6	4	<3	<3	3	<3	<3	10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	187	19	197	59	<5	6	65	51	307	<5	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	37	10	6	<3	<3	<3	4	5	95	5	800	15000	25000	<3	mg/kg	TM38/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn
EMT Job No: 23/19933

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	41-44	45-48	49-52	53-56							Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	BH-04	BH-04	BH-05	BH-07												
Depth	1.00	2.00	0.50	1.00												
COC No / misc																
Containers	V J T	V J T	V J T	V J T												
Sample Date	22/11/2023	22/11/2023	22/11/2023	22/11/2023												
Sample Type	Soil	Soil	Soil	Soil												
Batch Number	1	1	1	1												
Date of Receipt	27/11/2023	27/11/2023	27/11/2023	27/11/2023												
Solid Waste Analysis																
Total Organic Carbon #	0.41	0.37	2.59	0.75							3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025							6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035							1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30 SV							500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	1.02	<0.22							-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	1.90	<0.64							100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	<0.025	<0.025							0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.05	0.04	0.07	0.15							20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005							0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	<0.015	<0.015	<0.015	<0.015							0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07							2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001	<0.0001	<0.0001	<0.0001							0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.25	0.18	0.07	0.14							0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	0.02							0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05							0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02							0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03							0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03							4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	560	460	810	880							4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	30	20							500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1015	0.1034	0.1138	0.114							-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	89.0	87.1	78.8	78.6							-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.889	0.887	0.876	0.876							-	-	-		l	NONE/PM17
Moisture Content 105C (% Dry Weight)	12.4	14.8	26.8	27.2							-	-	-	<0.1	%	PM4/PM0
pH #	8.54	8.64	8.35	8.40							-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1							1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	5	<3							10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	21	20	6	14							1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	8	9	6	8							800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland

Reference: 13061-08-23

Location: Housing Bundle- Finglas Church

Contact: Diarmaid MagLochlainn

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
23/19933	1	TP-01	0.50	1-4	possible Naturally Occurring Compounds
23/19933	1	TP-01	1.00	5-8	No interpretation possible
23/19933	1	TP-02	0.50	9-12	No interpretation possible
23/19933	1	TP-02	1.00	13-16	No interpretation possible
23/19933	1	TP-03	0.50	17-20	No interpretation possible
23/19933	1	TP-03	2.00	21-24	No interpretation possible
23/19933	1	BH-01	1.00	25-28	No interpretation possible
23/19933	1	BH-02	1.00	29-32	Degraded Diesel
23/19933	1	BH-02	2.00	33-36	No interpretation possible
23/19933	1	BH-03	1.00	37-40	No interpretation possible
23/19933	1	BH-04	1.00	41-44	No interpretation possible
23/19933	1	BH-04	2.00	45-48	No interpretation possible
23/19933	1	BH-05	0.50	49-52	No interpretation possible
23/19933	1	BH-07	1.00	53-56	trace of possible Naturally Occurring Compounds

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle- Finglas Church
Contact: Diarmaid MagLochlainn

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/19933						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

EMT Job No.: 23/19933

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/19933

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes		AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	
Subcontracted	See attached subcontractor report for accreditation status and provider.					AR	

APPENDIX 7 – Groundwater Monitoring

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Catherinestown House,
Hazelhatch Road,
Newcastle,
Co. Dublin.
D22 YD52

Tel: 01 601 5175 / 5176
Email: info@gii.ie
Web: www.gii.ie

GROUNDWATER MONITORING

Housing Bundle - Finglas Church

BOREHOLE	DATE	TIME	GROUNDWATER (m BGL)	Comments
BH02	05/03/2024	08:35:00	1.01	