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Ground Investigations Ireland

Housing Bundle 4 & 5 - Lot 2 – Wellmount Road

National Development Finance Agency

Factual Ground Investigation Report

March 2024

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

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
B	Final	G. G. Rocha	D. MagLochlainn	C. Finnerty	Dublin	04 March 2024

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

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APPENDICES

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Appendix 2	**Trial Pit Records**
Appendix 3	**Soakaway Testing**
Appendix 4	**Slit Trenching**
Appendix 5	**Percussion Borehole Records**
Appendix 6	**Laboratory Testing**

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 January 2024 at the site of the proposed Housing Bundle 4 & 5 Lot 2 Wellmount Road 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 is currently used as greenspace surrounded by a residential estate. 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 4 No. Trial Pits to a maximum depth of 3.30m BGL.
- Carry out 2 No. Soakaways to determine a soil infiltration value to BRE digest 365.
- Carry out 6 No. Percussion boreholes to a maximum depth of 3.00m BGL.
- Carry out 6 No. Slit Trenching to determine existing service.
- Geotechnical & Environmental Laboratory testing.
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing were 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. Slit Trenching

The slit trenches 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 soil was slowly stripped using a spotter on the trench to alert the driver if any services were seen, to avoid damage to any underlying services. The slit trenches were 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 slit trench records which are provided in Appendix 4 of this Report.

3.5. Percussion Boreholes

The percussion boreholes were carried out at the locations shown in the location plan in Appendix 1 using a Tecopsa SPT Tec 10 percussion drilling rig. The percussion sampling consists of a 1m long steel tube with a cutting edge and an internal plastic liner which is mechanically driven into the ground utilising a 63.5kg weight falling a height of 760mm. Upon completion of the 1m sample, the tube is withdrawn, and the plastic liner removed and sealed for logging and sub sampling by a Engineering Geologist. The tube is replaced in the borehole and a subsequent 1m sample can be recovered. Occasionally outer casing or a reduced diameter tube is utilised to enable the window sample to progress in difficult drilling conditions. Geotechnical or environmental soil samples can be recovered from each of the liners following logging.
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 weight of 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 percussion borehole records 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. 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, pH and sulphate and organic matter 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, tests were carried out in NMTL's Geotechnical Laboratory in Carlow. California Bearing Ratio (CBR), Soil Resistivity and Redox potential testing carried out in Professional Soils Laboratory (PSL Ltd) in the UK.

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 consistent across the site and generally comprised.

- Topsoil
- Made Ground
- Cohesive Deposits
- Granular Deposits

TOPSOIL: Topsoil was encountered in all the exploratory holes and was present to a maximum depth of 0.30m BGL.

MADE GROUND: Made Ground deposits were encountered beneath the Topsoil and were present to depths of between 0.40m to 1.10m BGL. These deposits were described generally as *dark brown* or *brown slightly sandy slightly gravelly CLAY with occasional cobbles and contained occasional fragments of concrete, plastic, ceramic, glass, metal, concrete and wood.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Topsoil/ Made Ground and were described typically as *brown to grey brown slightly sandy slightly gravelly CLAY with occasional cobbles* overlying a *dark grey to grey slightly sandy 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 cohesive till matrix. The strength of the cohesive deposits typically increased with depth and was firm or firm to stiff below 1.0m 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 in BH01 and TP02 between and below the cohesive deposits and were typically described as *brown clayey sandy angular to subangular fine to coarse GRAVEL with subangular cobbles* or *grey* to *dark grey slightly clayey very sandy sub angular to rounded fine to coarse GRAVEL with some sub rounded cobbles.*
Based on the SPT N values the deposits are typically medium dense. It should be noted that many of the trial pits where granular deposits or groundwater were encountered, experienced instability. This was described either as side wall spalling or as side wall collapse in the remarks section at the base of the trial pit logs.

4.2. Groundwater

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

4.3. Laboratory Testing

4.3.1. Geotechnical Laboratory Testing

The geotechnical testing carried out on soil samples recovered generally confirm the descriptions on the logs with the primary constituent of the cohesive deposits found to be a CLAY of 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 19.60% and 65.60% generally with fines contents of 31.80% to 74.80%.
The CBR testing on remoulded samples gave a result of 0.70% for the cohesive deposits. The Thermal Resistivity testing gave a result of 48.381 Ohms/m while the Redox potential testing gave a result of 530 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.

APPENDIX 1 - Site Location Plan

Percussion Borehole
Soakaway Test
Slit Trench
Trial Pit
Site Boundary
Site Location

Client:
Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

Project Code:
13061-08-23(1)

Project Title:
Housing Bundle 4 & 5 - Finglas Welmount - Lot 1

Drawing Title:
Figure 1 Site Location Plan

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road

0 7 14 21 28 35 m

Drawn By: CE
Date: 18/12/2023

APPENDIX 2 – Trial Pit Records

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Trial Pit Number** TP01
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 2.70m x 0.60m x 3.0m	**Ground Level (mOD)** 54.99	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712367.3 E 738377.9 N	**Dates** 21/11/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				54.79	0.20			
					(0.50)	Brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm)		
0.50 0.50	B1 T1			54.29	0.70			
					(1.00)	Brown to greyish brown slightly sandy gravelly CLAY with some subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm)		
1.00 1.00	B2 T2			53.29	1.70			
					(0.50)	Brown to greyish brown slightly sandy gravelly CLAY with some subrounded cobbles. Gravel is subangular to rounded fine to coarse. (wet from 1.90m BGL)		▽1
2.00	B3		moderate to fast(1) at 1.90m.	52.79	2.20			
					(0.80)	Dark grey to black slightly sandy gravelly CLAY with occasional subrounded cobbles. Gravel is subangular to rounded fine to coarse. (firm to stiff to stiff)		
3.00	B4			51.99	3.00			
						Complete at 3.00m		

Plan

Remarks

Groundwater encountered at 1.90m BGL.
Trial Pit sidewalls collapsing from 1.30m and 1.80m BGL.
Trial Pit complete at 3.0m BGL.
Trial pit backfilled upon completion.

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

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Trial Pit Number** TP02
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 3.20m x 0.60m x 3.30m	**Ground Level (mOD)** 55.02	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712438.8 E 738365.1 N	**Dates** 17/11/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				54.82	0.20			
0.50 0.50	B1 T1				(0.60)	Brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm)		
				54.22	0.80			
1.00 1.00	B2 T2				(1.40)	Brown to greyish brown slightly sandy gravelly CLAY with some subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm to stiff)		
2.00	B3			52.82	2.20	Dark grey slightly sandy gravelly CLAY with some subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm to stiff)		▽1
			moderate to fast(1) at 2.30m.		(0.40)			
				52.42	2.60	Grey to dark grey slightly clayey very sandy subangular to rounded fine to coarse GRAVEL with some subrounded cobbles. (wet)		
3.00	B4				(0.70)			
				51.72	3.30	OBSTRUCTION: Groundwater ingress and sidewall instability.		
						Complete at 3.30m		

Plan

Remarks

Groundwater encountered at 2.30m BGL.
Trial Pit sidewalls collapsing from 2.60m BGL.
Trial Pit complete at 3.30m BGL. Obstructed due to groundwater ingress and sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	CE	13061-08-23(1).TP02

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Trial Pit Number** TP03
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 3.30m x 0.60m x 3.10m	**Ground Level (mOD)** 53.21	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712340.9 E 738326.3 N	**Dates** 21/11/2023	**Engineer** National Development Finance Agency	**Sheet** 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.		
				52.91	0.30			
0.50 0.50	B1 T1				(0.70)	Brown to dark brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (soft to firm)		
1.00	B2			52.21	1.00			
					(1.10)	Brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm)		
2.00	B3			51.11	2.10			
					(0.60)	Brown slightly sandy gravelly CLAY with occasional subrounded cobbles. Gravel is subangular to rounded fine to coarse. (firm to stiff)		
				50.51	2.70			
					(0.40)	Dark grey to black slightly sandy gravelly CLAY with some subrounded cobbles. Gravel is subangular to rounded fine to coarse. (stiff)		
3.00	B4			50.11	3.10			
						Complete at 3.10m		

Plan

Remarks

No groundwater encountered.
Trial Pit sidewalls stable.
Trial Pit complete at 3.10m BGL.
Trial pit backfilled upon completion.

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

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Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Trial Pit Number** TP04
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 3.20m x 0.60m x 2.80m	**Ground Level (mOD)** 53.34	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712370.3 E 738327.4 N	**Dates** 17/11/2023	**Engineer** National Development Finance Agency	**Sheet** 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.		
				53.04	0.30			
0.50 0.50	B1 T1				(0.90)	Brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm)		
1.00 1.00	B2 T2			52.14	1.20			
					(1.10)	Brown to greyish brown slightly sandy gravelly CLAY with some subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (firm to stiff)		
2.00	B3			51.04	2.30			
					(0.50)	Dark grey slightly sandy gravelly CLAY with occasional subrounded cobbles. Gravel is subangular to subrounded fine to coarse. (stiff)		
				50.54	2.80	Complete at 2.80m		

Plan

Remarks

No groundwater encountered.
Trial Pit sidewalls stable.
Trial Pit complete at 2.80m BGL.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	CE	13061-08-23(1).TP04

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

TP01

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

TP02

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

TP03

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

TP04

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

APPENDIX 3 – Soakaway Testing

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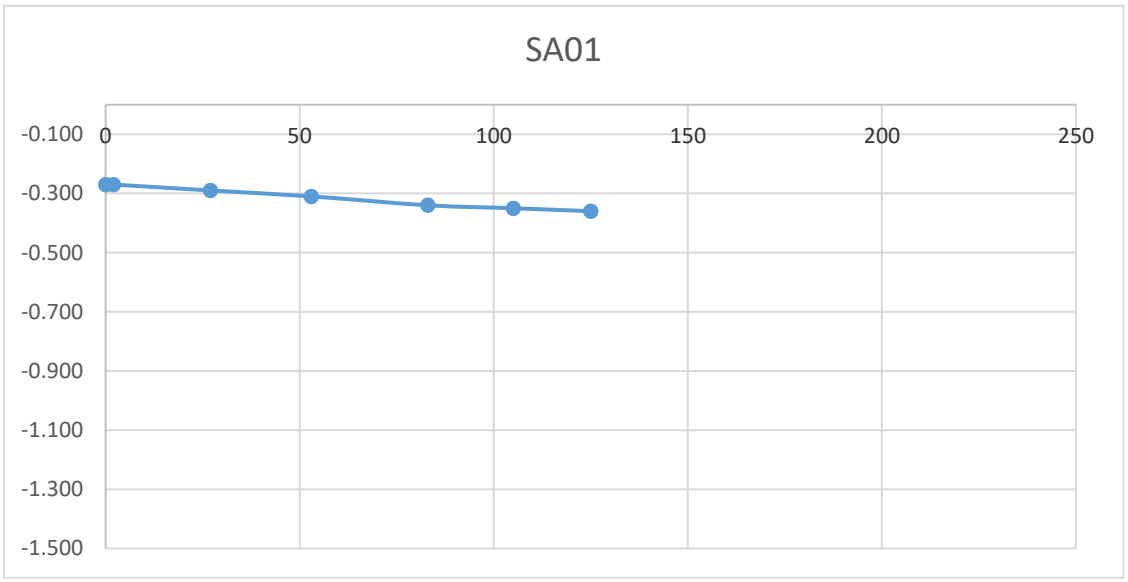
SA01

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 1.20m x 0.30m 1.50m (L x W x D)

Date	Time	Water level (m bgl)
18/12/2023	0	-0.270
18/12/2023	2	-0.270
18/12/2023	27	-0.290
18/12/2023	53	-0.310
18/12/2023	83	-0.340
18/12/2023	105	-0.350
18/12/2023	125	-0.360

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.27	1.500	1.230	0.5775	1.1925



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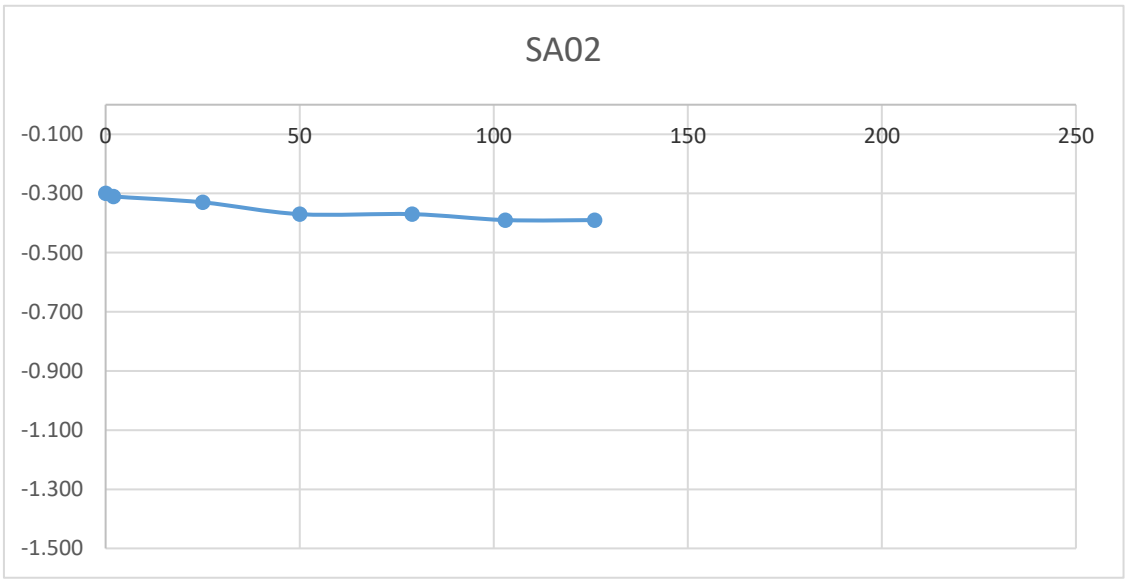
SA02

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 1.30m x 0.30m 1.50m (L x W x D)

Date	Time	Water level (m bgl)
18/12/2023	0	-0.300
18/12/2023	2	-0.310
18/12/2023	25	-0.330
18/12/2023	50	-0.370
18/12/2023	79	-0.370
18/12/2023	103	-0.390
18/12/2023	126	-0.390

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.30	1.500	1.200	0.6	1.2



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Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Trial Pit Number** SA01
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 1.20m x 0.30m x 1.50m	**Ground Level (mOD)** 52.46	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712367.6 E 738301 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				52.26	0.20	MADE GROUND (reworked): Brown slightly sanyd slightly gravelly Clay with occasional subrounded cobbles and occasional plastic fragments. Gravel is subangular to subrounded fine to coarse.		
					(0.60)			
				51.66	0.80	Brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles. Gravel is subangular to subrounded fine to coarse.		
					(0.70)			
				50.96	1.50	Complete at 1.50m		

Plan

Remarks

No groundwater encountered.
Trial Pit sidewalls stable.
Trial Pit complete at 1.50m BGL. Soakaway test carried out in trial pit upon completion.
Trial pit backfilled upon completion of soakaway test.

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

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Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Trial Pit Number** SA02
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 1.30m x 0.30m x 1.50m	**Ground Level (mOD)** 53.41	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712405.9 E 738321.4 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				53.21	0.20			
					(0.60)	MADE GROUND (reworked): Brown slightly sandy slightly gravelly Clay with occasional subrounded cobbles and occasional plastic and glass fragments. Gravel is subangular to subrounded fine to coarse.		
				52.61	0.80			
					(0.70)	Brown slightly sandy gravelly CLAY with occasional subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse.		
				51.91	1.50			
						Complete at 1.50m		

Plan

Remarks

No groundwater encountered.
Trial Pit sidewalls stable.
Trial Pit complete at 1.50m BGL. Soakaway test carried out in trial pit upon completion.
Trial pit backfilled upon completion of soakaway test.

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

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

SA01

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

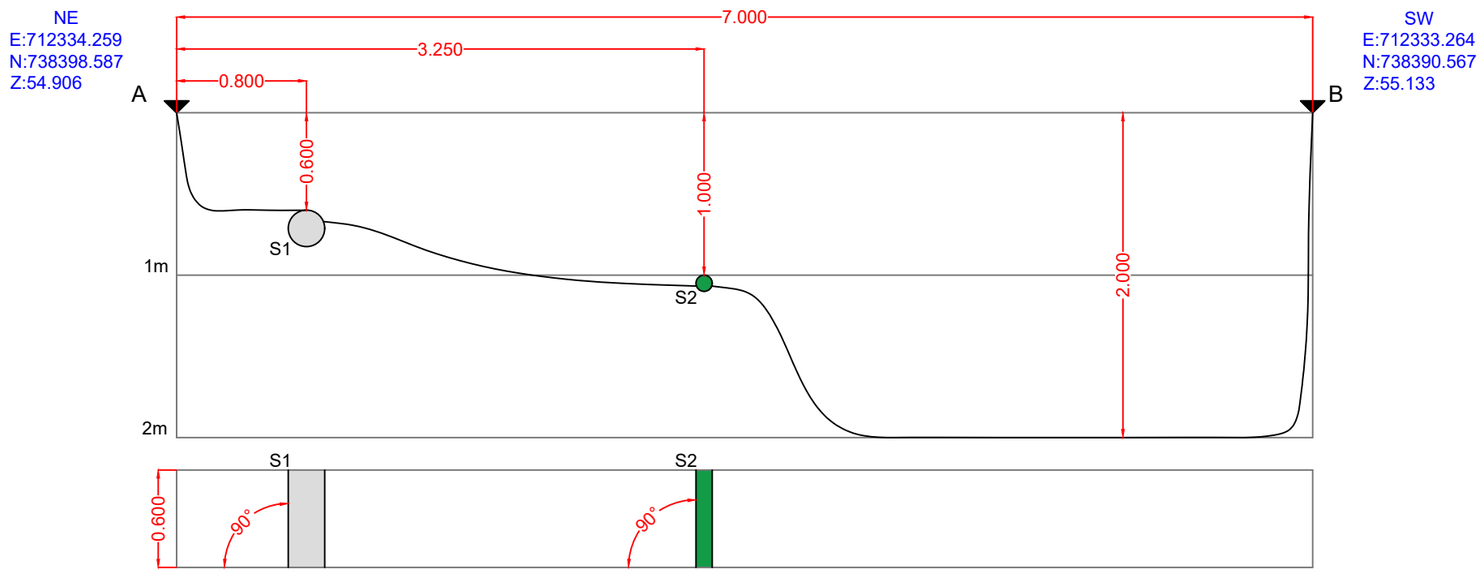
Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

SA02

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Trial Pit Photographs

APPENDIX 4 – Slit Trenching

ST-01



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	
S1	0.225	Concrete	Water	90°	712334.369	738397.751	54.292
S2	0.100	Green duct	Telecom / fibre	90°	712333.662	738395.279	54.192

Surface from/to (m)		Surface type
0.00	7.00	GRASS

Sample depth (m)	Sample type

From (m)	To (m)	Description
0.00	0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.10	0.80	MADE GROUND: Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles and occasional plastic, fabric, and glass fragments.
0.80	1.20	MADE GROUND (reworked): Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles.
1.20	2.00	Brown to greyish brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.

Groundwater	Y/N	Depth	Notes
Slow	Y	1.70	

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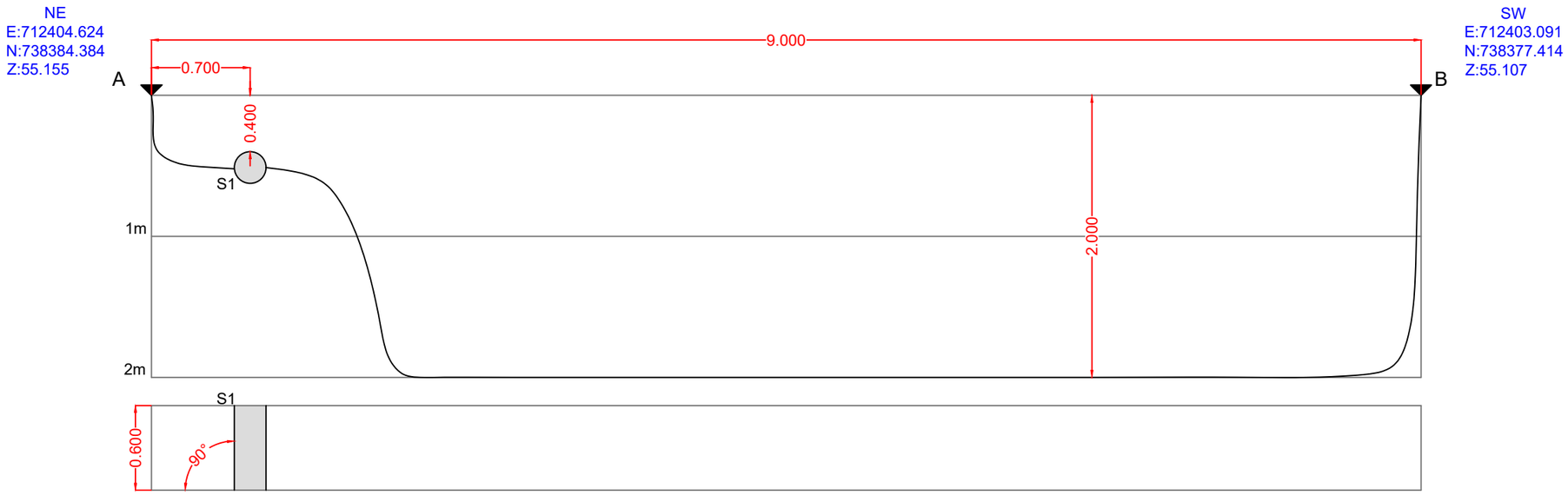
PROJECT:	13061-08-23 - Housing Bundle 4 & 5 - Lot 2 - Finglas Wellmount
DRAWING No.:	ST-01
DATE:	17/11/2023
CLIENT:	NDFA
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	16/01/2024	J.S.	C.E.

ST-02



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	
S1	0.225	Concrete	Water	90°	712404.488	738383.628	54.826

Surface from/to (m)		Surface type
0.00	9.00	GRASS

Sample depth (m)	Sample type

From (m)	To (m)	A Side - Description
0.00	0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.20	0.60	MADE GROUND: Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles and occasional plastic, fabric, and glass fragments.
0.60	0.90	MADE GROUND (reworked): Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles.
0.90	1.50	Brown to greyish brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.
1.50	2.00	Brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.
		B Side - Description
0.00	0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.20	0.90	Brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.
0.90	2.00	Brown to greyish brown slightly sandy gravelly CLAY with some subangular to subrounded cobbles.

Groundwater	Y/N	Depth	Notes
	N		

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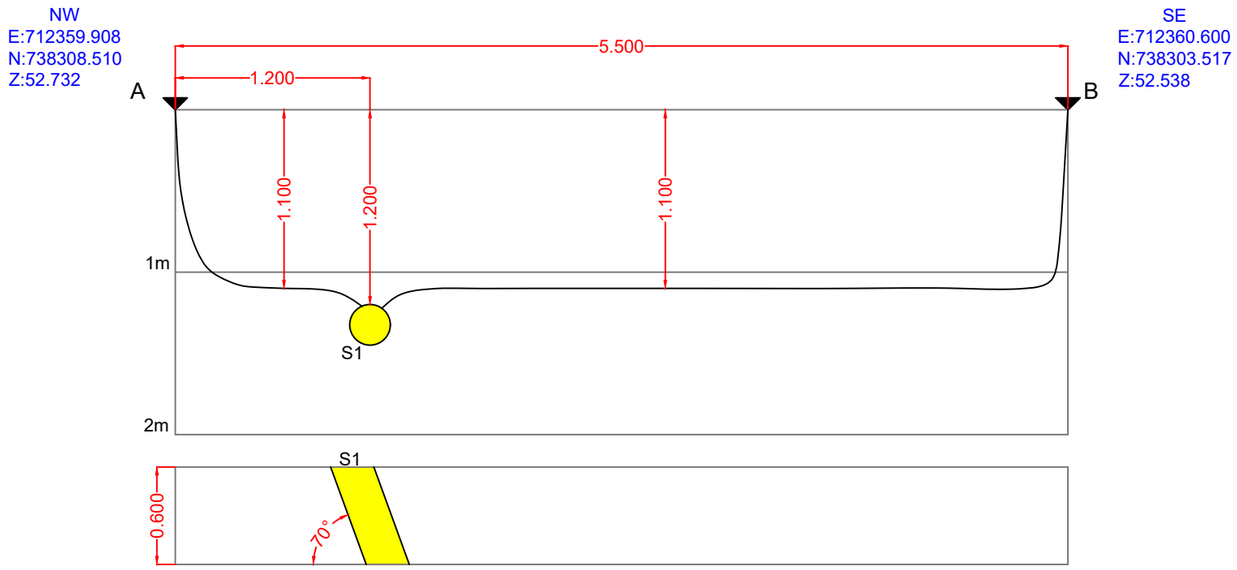
PROJECT:	13061-08-23 - Housing Bundle 4 & 5 - Lot 2 - Finglas Wellmount
DRAWING No.:	ST-02
DATE:	17/11/2023
CLIENT:	NDFA
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	16/01/2024	J.S.	C.E.

ST-03



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	
S1	0.225	Yellow - PVC	Gas	70°	712360.077	738307.300	51.503

Surface from/to (m)		Surface type
0.00	5.50	GRASS

Sample depth (m)	Sample type

From (m)	To (m)	Description
0.00	0.30	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.30	1.20	MADE GROUND (reworked): Brown slightly sandy slightly gravelly Clay with occasional subangular to subrounded cobbles and rare plastic and metal fragments.

Groundwater	Y/N	Depth	Notes
	N		

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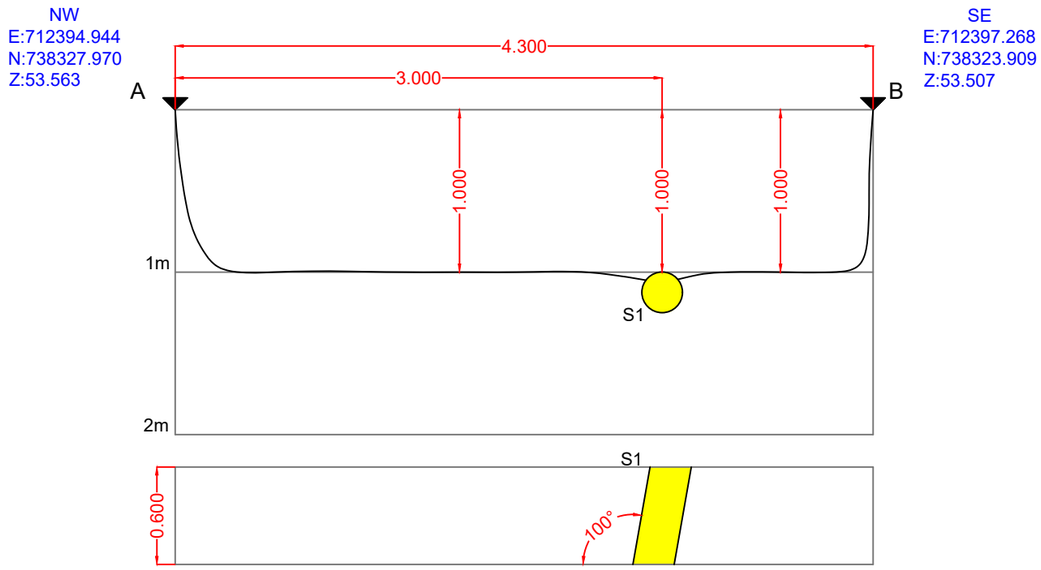
PROJECT:	13061-08-23 - Housing Bundle 4 & 5 - Lot 2 - Finglas Wellmount
DRAWING No.:	ST-03
DATE:	21/11/2023
CLIENT:	NDFA
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	16/01/2024	J.S.	C.E.

ST-04



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	
S1	0.225	Yellow - PVC	Gas	100°	712396.541	738325.202	52.622

Surface from/to (m)		Surface type
0.00	4.30	GRASS

Sample depth (m)	Sample type

From (m)	To (m)	Description
0.00	0.30	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.30	1.00	MADE GROUND (reworked): Brown slightly sandy slightly gravelly Clay with some subangular to subrounded cobbles and rare plastic and redbrick fragments.

Groundwater	Y/N	Depth	Notes
	N		

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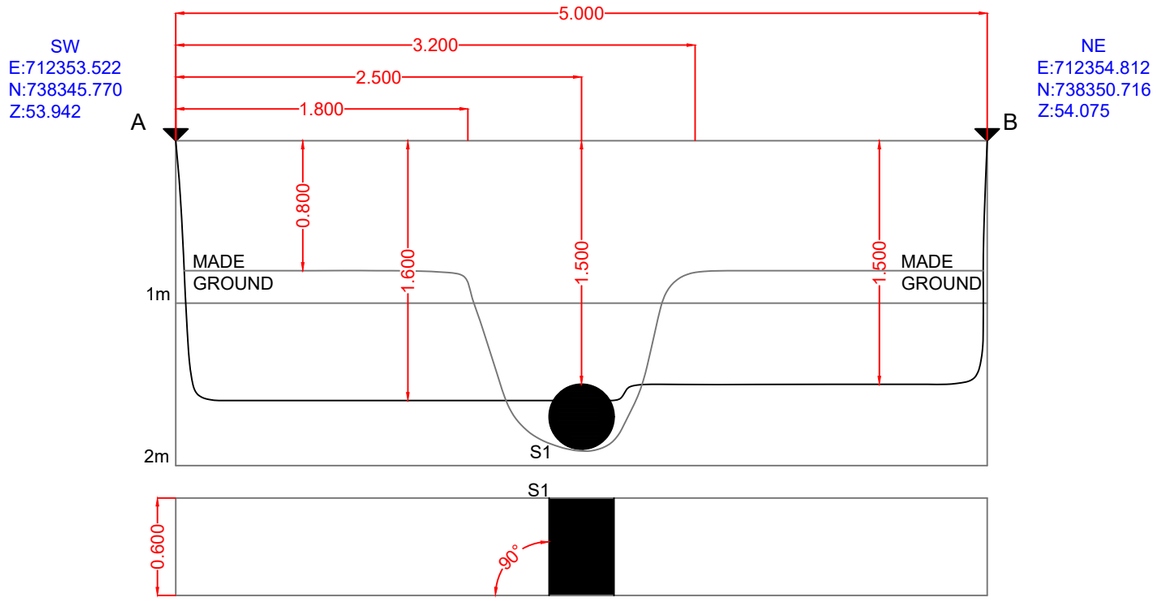
PROJECT:	13061-08-23 - Housing Bundle 4 & 5 - Lot 2 - Finglas Wellmount
DRAWING No.:	ST-04
DATE:	21/11/2023
CLIENT:	NDFA
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	16/01/2024	J.S.	C.E.

ST-05



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	
S1	~0.400	Black slate	Old stone culvert	90°	712354.212	738348.560	52.554

Surface from/to (m)		Surface type
0.00	5.00	GRASS

Sample depth (m)	Sample type

From (m)	To (m)	Description
0.00	0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.20	0.60	MADE GROUND: Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles and occasional plastic, fabric, and glass fragments.
0.60	0.80	MADE GROUND (reworked): Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles.
0.80	1.60	Brown to greyish brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.

Groundwater	Y/N	Depth	Notes
Very slow	Y	1.10	

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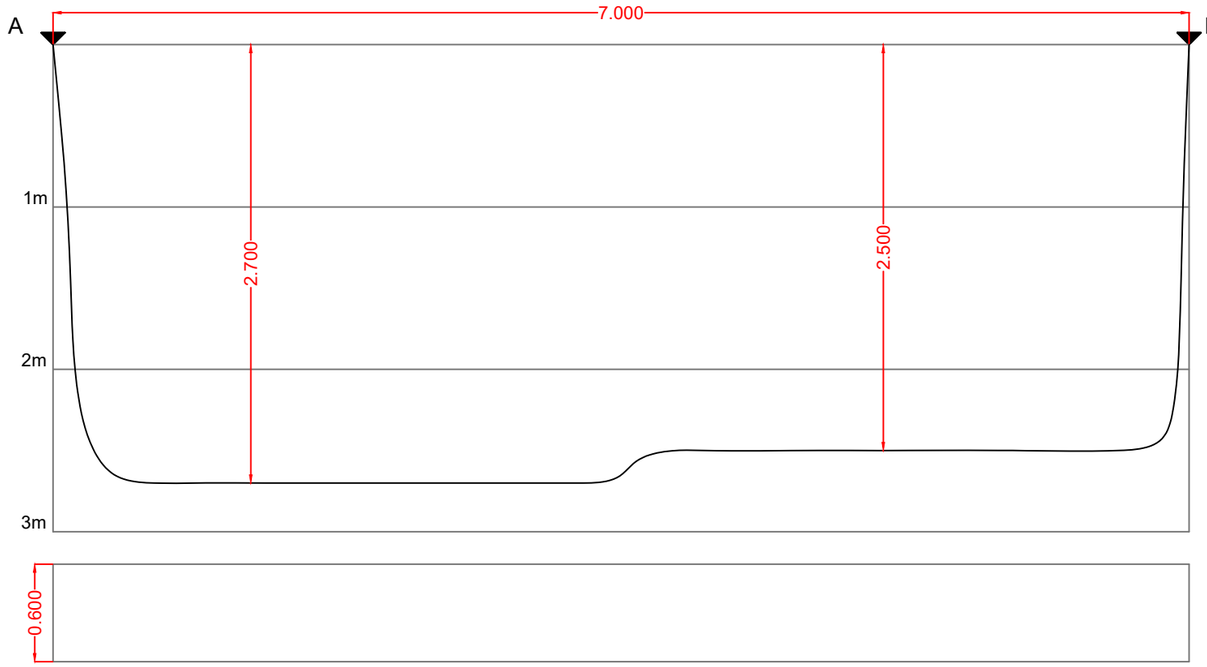
PROJECT:	13061-08-23 - Housing Bundle 4 & 5 - Lot 2 - Finglas Wellmount
DRAWING No.:	ST-05
DATE:	18/12/2023
CLIENT:	NDFA
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	16/01/2024	J.S.	C.E.

ST-06

NW
E:712322.807
N:738363.545
Z:54.370

SE
E:712325.346
N:738357.013
Z:54.169



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	

Surface from/to (m)		Surface type
0.00	7.00	GRASS

Sample depth (m)	Sample type

From (m)	To (m)	A Side - Description
0.00	0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.20	0.50	MADE GROUND: Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles and occasional plastic, fabric, and glass fragments.
0.50	1.00	MADE GROUND (reworked): Greyish brown slightly sandy gravelly Clay with some subangular to subrounded cobbles.
1.00	1.70	Brown to greyish brown slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.
1.70	2.50	Light greyish brown slightly sandy slightly gravelly CLAY with occasional angular to subangular cobbles. (damp)
2.50	2.70	Grey to dark grey slightly sandy gravelly CLAY with occasional subrounded cobbles.
		B Side - Description
0.00	0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.
0.20	1.70	MADE GROUND: Brown slightly sandy slightly gravelly Clay with occasional subangular to subrounded cobbles and some shell and redbrick fragments.
1.70	2.50	Brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles and boulders.

Groundwater	Y/N	Depth	Notes
Slow	Y	1.90	

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PROJECT:	13061-08-23 - Housing Bundle 4 & 5 - Lot 2 - Finglas Wellmount
DRAWING No.:	ST-06
DATE:	18/12/2023
CLIENT:	NDFA
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	16/01/2024	J.S.	C.E.

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

ST01

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

ST02

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

ST03

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

ST04

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

ST05

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

ST06

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

APPENDIX 5 – Percussion Borehole Records

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Number** BH01
Machine : Tecopsa Tec 10.2 **Method :** Drive-in Windowless Sampler	**Dimensions** 87mm to 2.50m	**Ground Level (mOD)** 54.94	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712313.5 E 738382.7 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				54.74	0.20	MADE GROUND: Brown slightly sandy slightly gravelly Clay with occasional angular to subrounded cobbles with fragments of brick, wood, concrete and glass		
					(0.50)			
				54.24	0.70	Firm to stiff brownish grey slightly sandy very gravelly CLAY with occasional angular to subrounded cobbles. Sand is fine to coarse Gravel is angular to subrounded fine to coarse.		
1.00-1.45	SPT(C) N=20		3,5/5,6,5,4		(0.50)			
				53.74	1.20	Medium dense brown clayey sandy angular to subrounded fine to coarse GRAVEL with occasional angular to subrounded cobbles		
					(0.30)			
				53.44	1.50	Stiff greyish brown silty sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
					(0.60)			
2.00-2.45	SPT(C) N=34		2,3/5,8,8,13	52.84	2.10	Very stiff dark grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
					(0.40)			
2.50-2.65	SPT(C) 50/0		25,25/50	52.44	2.50	REFUSAL: Obstruction encountered.		
						Complete at 2.50m		

Remarks
Percussion Borehole carried out to 2.50m BGL. Refusal on obstruction.
Recovery: 0.00m to 1.00m BGL = 100%
Recovery: 1.00m to 2.00m BGL = 80%
Recovery: 2.00m to 2.50m BGL = 80%
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	CE

Figure No. 13061-08-23(1).BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Number** BH02
Machine : Tecopsa Tec 10.2 **Method :** Drive-in Windowless Sampler	**Dimensions** 87mm to 2.60m	**Ground Level (mOD)** 54.47	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712315.3 E 738366.3 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				54.27	0.20	MADE GROUND: Brown slightly sandy slightly gravelly CLAY with rare subangular to subrounded cobbles with fragments of glass, plastic, brick, can and concrete		
					(0.50)			
				53.77	0.70	Firm to stiff greyish brown slightly sandy slightly gravelly CLAY with rare subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
1.00-1.45	SPT(C) N=16		2,3/3,4,4,5		(1.20)			
				52.57	1.90	Stiff light brown sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
2.00-2.45	SPT(C) N=22		1,2/2,3,4,13		(0.30)			
				52.27	2.20	Very stiff dark grey slightly sandy gravelly CLAY with rare subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
					(0.40)			
2.60-2.75	SPT(C) 50/0		25,25/50	51.87	2.60	REFUSAL: Obstruction encountered.		
						Complete at 2.60m		

Remarks
Percussion Borehole carried out to 2.60m BGL. Refusal on obstruction.
Recovery: 0.00m to 1.00m BGL = 100%
Recovery: 1.00m to 2.00m BGL = 90%
Recovery: 2.00m to 2.60m BGL = 85%
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	CE

Figure No. 13061-08-23(1).BH02

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Number** BH03
Machine : Tecopsa Tec 10.2 **Method :** Drive-in Windowless Sampler	**Dimensions** 87mm to 3.00m	**Ground Level (mOD)** 54.22	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712334.3 E 738359.4 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				54.02	0.20	MADE GROUND: Brown slightly sandy slightly gravelly Clay with occasional subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
					(0.30)			
				53.72	0.50	Firm to stiff greyish brown slightly sandy gravelly CLAY with occasional subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
1.00-1.45	SPT(C) N=13		2,2/3,3,4,4,3		(1.50)			
2.00-2.45	SPT(C) N=50		4,7/12,14,16,8	52.22	2.00	Very stiff dark grey slightly sandy gravelly CLAY with occasional subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
					(1.00)			
3.00-3.15	SPT(C) 50/0		25,25/50	51.22	3.00	REFUSAL: Obstruction encountered.		
						Complete at 3.00m		

Remarks
Percussion Borehole carried out to 3.0m BGL. Refusal on obstruction.
Recovery: 0.00m to 1.00m BGL = 100%
Recovery: 1.00m to 2.00m BGL = 100%
Recovery: 2.00m to 3.00m BGL = 90%
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	CE

Figure No. 13061-08-23(1).BH03

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Number** BH04
Machine : Premier 110 **Method :** Drive-in Windowless Sampler	**Dimensions** 87mm to 2.60m	**Ground Level (mOD)** 53.37	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712327.3 E 738335.3 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
				53.17	0.20	MADE GROUND: Brown slightly sandy slightly gravelly CLAY with fragments of glass, metal and plastic		
					(0.20)			
				52.97	0.40	Firm to stiff light brownish grey sandy gravelly CLAY with occasional subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
1.00-1.45	SPT(C) N=9		2,3/2,2,2,3					
					(1.60)			
2.00-2.45	SPT(C) N=32		4,5/6,7,8,11	51.37	2.00	Very stiff dark grey sandy gravelly CLAY with rare subangular to subrounded cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.		
					(0.60)			
2.60-2.75	SPT(C) 50/0		25,25/50	50.77	2.60	REFUSAL: Obstruction encountered.		
						Complete at 2.60m		

Remarks
Percussion Borehole carried out to 2.60m BGL. Refusal on obstruction.
Recovery: 0.00m to 1.00m BGL = 100%
Recovery: 1.00m to 2.00m BGL = 100%
Recovery: 2.00m to 2.60m BGL = 100%
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	CE

Figure No. 13061-08-23(1).BH04

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Number** BH05
Machine : Premier 110 **Method :** Drive-in Windowless Sampler	**Dimensions** 87mm to 2.80m	**Ground Level (mOD)** 52.81	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712351.3 E 738313.8 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
0.20-1.10	D1			52.61	0.20			
0.20-1.10	ES1					MADE GROUND: Dark brown slightly sandy slightly gravelly Clay with occasional subrounded cobbles and occasional glass and ceramic fragments. Gravel is subangular to subrounded fine to coarse.		
					(0.90)			
1.00-1.45	SPT(C) N=11		2,3/3,3,2,3					
1.10-2.00	ES2			51.71	1.10			
1.10-2.30	D2					Firm light brown to brown slightly sandy slightly gravelly CLAY with occasional subangular cobbles. Gravel is subangular to subrounded fine to coarse.		
					(1.20)			
2.00-2.45	SPT(C) N=14		2,3/2,3,4,5					
2.30-2.80	D3			50.51	2.30			
						Firm to stiff brown slightly sandy gravelly CLAY with occasional subrounded cobbles. Gravel is subangular to subrounded fine to coarse.		
					(0.50)			
2.80-2.95	SPT(C) 50/0		25,25/50	50.01	2.80	REFUSAL: Obstruction encountered.		
						Complete at 2.80m		

Remarks
Percussion Borehole carried out to 2.80m BGL. Refusal on obstruction.
Recovery: 0.0m to 1.0m BGL = 75%.
Recovery: 1.0m to 2.0m BGL = 100%.
Recovery: 2.0m to 2.80m BGL = 100%.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	CE

Figure No. 13061-08-23(1).BH05

Ground Investigations Ireland Ltd
www.gii.ie

Site Housing Bundle 4&5- Lot 1 - Finglas Wellmount			**Number** BH06
Machine : Premier 110 **Method :** Drive-in Windowless Sampler	**Dimensions** 87mm to 2.00m 66mm to 3.00m	**Ground Level (mOD)** 52.45	**Client** Dublin City Council	**Job Number** 13061-08-23(1)
	Location 712357.5 E 738302.3 N	**Dates** 18/12/2023	**Engineer** National Development Finance Agency	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets.		
0.20-0.80	D1			52.25	0.20			
0.20-0.80	ES1					MADE GROUND: Brown slightly sandy slightly gravelly Clay with occasional ceramic and glass fragments. Gravel is angular to subrounded fine to coarse.		
					(0.60)			
0.80-1.60	D2			51.65	0.80	Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse.		
1.00-1.45	SPT(C) N=10		1,2/2,2,3,3					
1.00-2.00	ES2							
					(0.80)			
1.60-3.00	D3			50.85	1.60	Firm to stiff light brown to brown slightly sandy gravelly CLAY with occasional subangular cobbles. Gravel is subangular to subrounded fine to coarse.		
2.00-2.45	SPT(C) N=14		2,3/3,3,4,4					
					(1.40)			
3.00-3.15	SPT(C) 50/0		25,25/50	49.45	3.00	REFUSAL: Obstruction encountered.		
						Complete at 3.00m		

Remarks
Percussion Borehole carried out to 3.0m BGL. Refusal on obstruction.
Recovery: 0.0m to 1.0m BGL = 80%.
Recovery: 1.0m to 2.0m BGL = 100%.
Recovery: 2.0m to 3.0m BGL = 85%.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	CE

Figure No. 13061-08-23(1).BH06

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

BH01

BH02

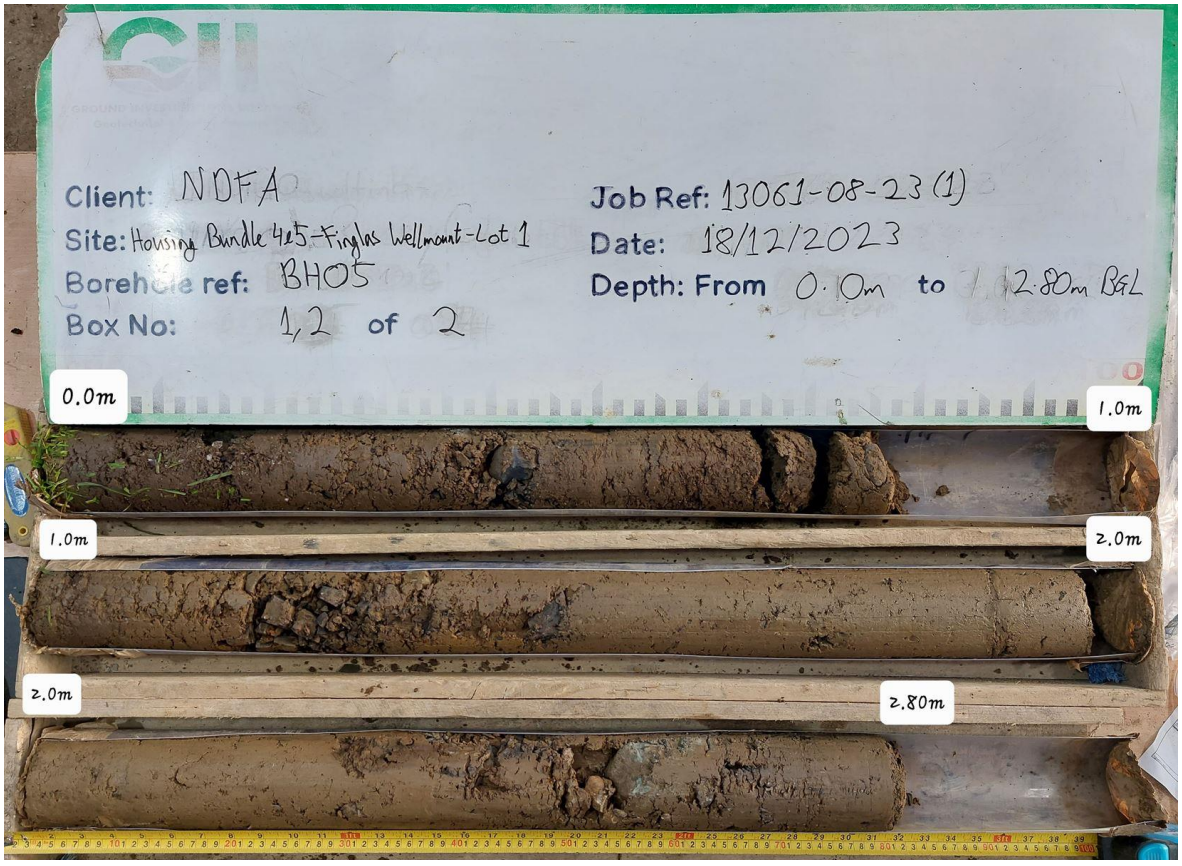
Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

BH03

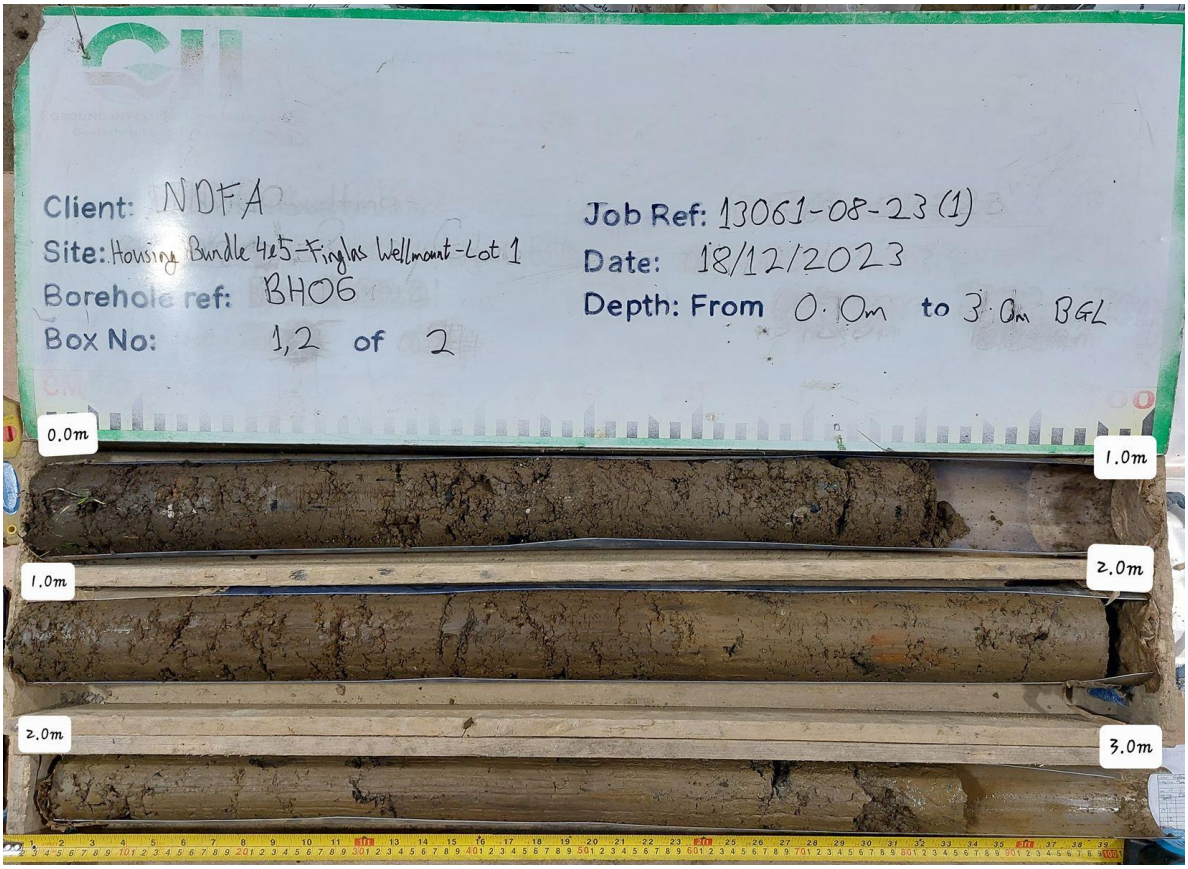
BH04

Housing Bundle 4&5 – Finglas Wellmount – Lot 1 – Slit Trench Photographs

BH05



BH06



APPENDIX 6 – Laboratory Testing

National Materials Testing Laboratory Ltd.

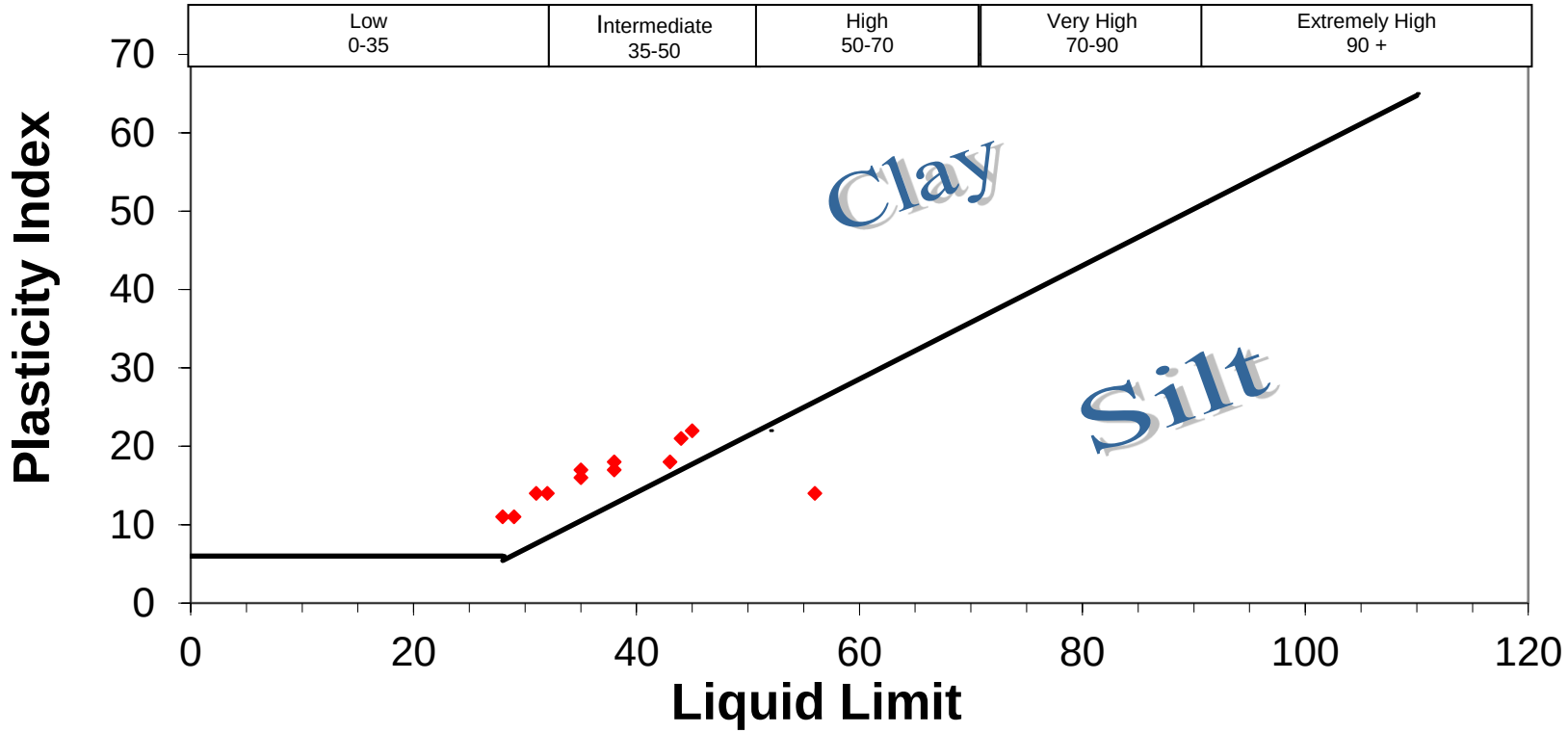
SUMMARY OF TEST RESULTS

				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	23.9		58.3	45	23	22						
TP01	1.00	B	14.7		46.1	28	17	11						
TP01	2.00	B	12.7		52.2	29	8	11						
TP02	0.50	B	17.6		56.2	38	21	17						
TP02	1.00	B	16.0		44.4	32	18	14						
TP02	3.00	B	9.6		19.0	56	42	14						
TP03	0.50	B	22.7		46.4	43	25	18						
TP03	1.00	B	17.7		53.4	35	19	16						
TP03	3.00	B	13.0		52.9	38	20	18						
TP04	0.50	B	23.0		41.5	44	23	21						
TP04	1.00	B	19.0		40.7	35	18	17						
TP04	2.00	B	11.4		43.9	31	17	14						

NMTL	Notes :	Job ref No.	NMTL 3697	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 Wellmount-Lot 1		

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 Wellmount-Lot 1**		
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 3697**		

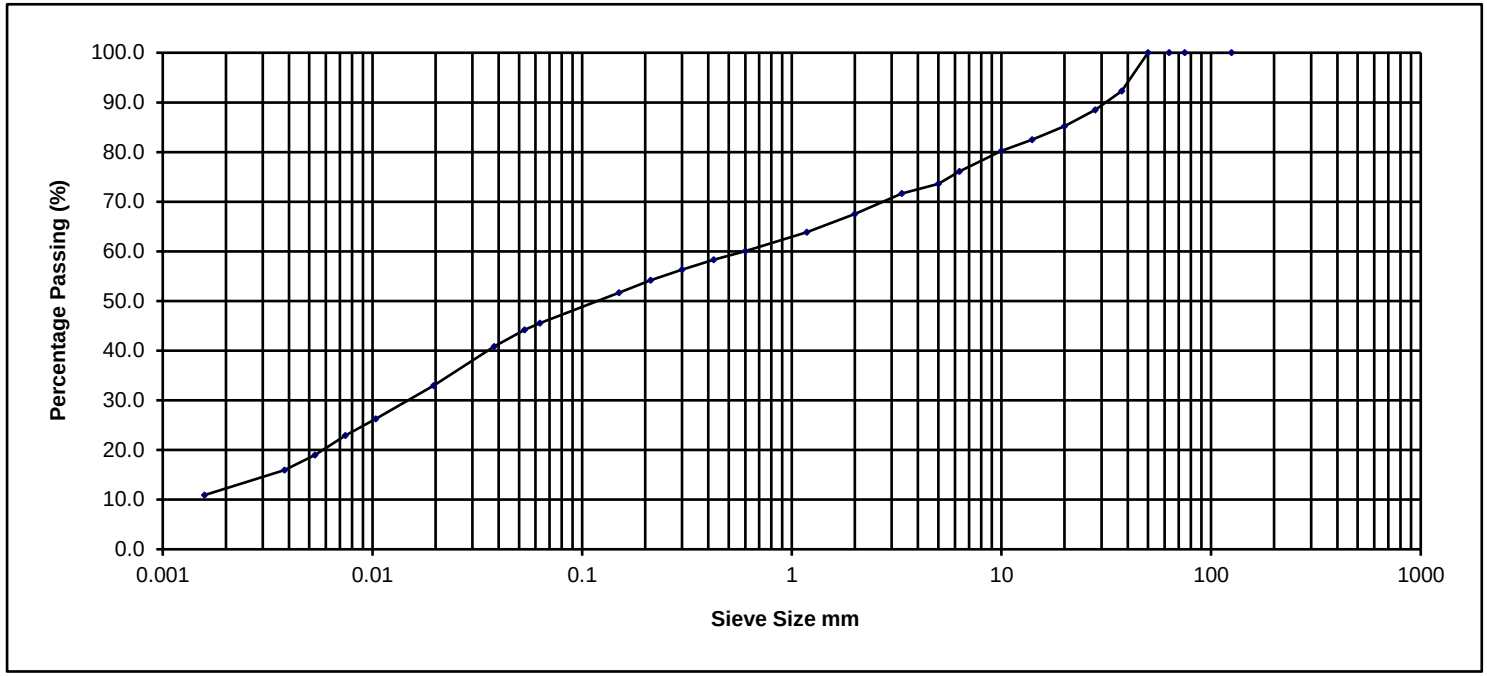


NMTL Ltd

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	92.3
28.000	88.5
20.000	85.2
14.000	82.5
10.000	80.2
6.300	76.1
5.000	73.6
3.350	71.7
2.000	67.6
1.180	63.9
0.600	60.1
0.425	58.3
0.300	56.3
0.212	54.2
0.150	51.7
0.063	45.6
0.053	44.2
0.038	40.8
0.020	33.0
0.010	26.3
0.007	22.9
0.005	19.0
0.004	15.9
0.002	10.9



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
10.9		34.7			22.0			32.4		0.0	0.0

Sample Description	Dark brown slightly sandy slightly gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP01
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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

NMTL 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	91.6
50.000	84.9
37.500	82.3
28.000	80.6
20.000	78.6
14.000	76.7
10.000	74.2
6.300	68.9
5.000	64.6
3.350	61.7
2.000	56.6
1.180	52.7
0.600	48.2
0.425	46.1
0.300	44.0
0.212	41.7
0.150	39.3
0.063	34.2
0.052	32.3
0.037	30.6
0.019	25.4
0.010	20.6
0.007	17.9
0.005	15.4
0.004	13.1
0.002	9.4

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
9.4		24.8			22.4			35.0		8.4	0.0

Sample Description: Brown slightly sandy gravelly silty CLAY.

Project: Housing Bundle 4 & 5-Finglas Wellmount lot 1 — GII PROJECT ID:13061-08-23(1)

Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	15/02/2024

Project No.	NMTL 3697
BH/TP No.	TP01
Sample No.	B
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	96.0
37.500	92.0
28.000	88.9
20.000	86.1
14.000	79.5
10.000	75.4
6.300	71.6
5.000	70.2
3.350	68.1
2.000	64.4
1.180	60.4
0.600	55.0
0.425	52.2
0.300	49.3
0.212	46.2
0.150	42.7
0.063	35.6
0.052	34.2
0.037	32.3
0.019	27.3
0.010	22.4
0.007	19.4
0.005	17.4
0.004	15.2
0.002	10.9

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
10.9		24.7			28.8			35.6		0.0	0.0

Sample Description	Dark brown/grey slightly sandy gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP01
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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	91.2
28.000	87.2
20.000	84.0
14.000	78.8
10.000	75.9
6.300	72.5
5.000	71.8
3.350	70.3
2.000	66.9
1.180	63.6
0.600	58.8
0.425	56.2
0.300	53.4
0.212	50.4
0.150	47.2
0.063	40.5
0.052	39.0
0.037	36.2
0.019	31.6
0.010	26.5
0.007	23.0
0.005	18.9
0.004	16.6
0.002	11.8

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
11.8		28.6			26.5			33.1		0.0	0.0

Sample Description	Dark brown/grey slightly sandy slightly gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP02
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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

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	90.0
37.500	82.3
28.000	77.8
20.000	74.0
14.000	67.7
10.000	65.0
6.300	61.0
5.000	58.8
3.350	57.2
2.000	54.0
1.180	50.5
0.600	46.5
0.425	44.4
0.300	42.3
0.212	40.1
0.150	38.0
0.063	33.2
0.052	32.3
0.037	29.7
0.019	25.7
0.010	21.4
0.007	18.7
0.005	16.1
0.004	14.1
0.002	10.0

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
10.0		23.2			20.8			46.0		0.0	0.0

Sample Description	Brown grey slightly sandy gravelly silty CLAY.			Project No.	NMTL 3697
				BH/TP No.	TP02
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1		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	89.1
37.500	85.9
28.000	83.2
20.000	79.9
14.000	73.2
10.000	64.6
6.300	53.9
5.000	47.4
3.350	42.5
2.000	34.4
1.180	27.3
0.600	21.1
0.425	19.0
0.300	17.4
0.212	16.0
0.150	13.8
0.063	8.9
0.055	8.1
0.039	7.7
0.020	6.7
0.011	4.9
0.008	4.3
0.005	3.6
0.004	3.0
0.002	2.1

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
2.1		6.8			25.5			65.6		0.0	0.0

Sample Description	Brown clayey silty very sandy GRAVEL.					Project No.	NMTL 3697
						BH/TP No.	TP02
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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	89.2
50.000	83.7
37.500	75.8
28.000	73.7
20.000	70.9
14.000	67.7
10.000	65.3
6.300	62.7
5.000	60.5
3.350	58.4
2.000	54.9
1.180	51.8
0.600	48.2
0.425	46.4
0.300	44.5
0.212	42.3
0.150	40.0
0.063	35.2
0.054	34.1
0.039	30.6
0.020	23.7
0.011	17.7
0.008	14.3
0.005	10.8
0.004	8.3
0.002	4.4

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
4.4		30.8			19.7			34.4		10.8	0.0

Sample Description	Dark brown slightly sandy gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP03
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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	93.6
37.500	90.4
28.000	84.1
20.000	81.0
14.000	76.8
10.000	73.6
6.300	70.5
5.000	68.5
3.350	66.8
2.000	64.0
1.180	60.5
0.600	56.0
0.425	53.4
0.300	50.6
0.212	47.4
0.150	44.1
0.063	36.6
0.052	34.8
0.038	32.1
0.019	27.4
0.010	21.2
0.007	18.5
0.005	16.0
0.004	13.6
0.002	10.1

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
10.1		26.5			27.4			36.0		0.0	0.0

Sample Description	Brown slightly sandy gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP03
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			GII PROJECT ID:13061-08-23(1)		Sample No.	B
Operator	Sb	Checked	Nc	Approved	Bc	Depth	1.00m

Date sample tested 15/02/2024

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	97.4
28.000	90.4
20.000	87.7
14.000	85.1
10.000	82.3
6.300	75.3
5.000	72.3
3.350	69.4
2.000	65.1
1.180	60.7
0.600	55.5
0.425	52.9
0.300	50.2
0.212	47.2
0.150	44.2
0.063	37.6
0.053	36.1
0.038	33.4
0.019	28.6
0.010	23.9
0.007	21.0
0.005	18.6
0.004	15.7
0.002	11.7

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
11.7		25.9			27.5			34.9		0.0	0.0

Sample Description	Dark brown slightly sandy gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP03
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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	85.1
50.000	80.1
37.500	76.0
28.000	72.7
20.000	69.8
14.000	62.8
10.000	61.2
6.300	57.7
5.000	55.5
3.350	53.7
2.000	50.3
1.180	47.2
0.600	43.4
0.425	41.5
0.300	39.5
0.212	37.4
0.150	35.3
0.063	30.7
0.052	29.5
0.037	27.5
0.019	21.7
0.010	17.4
0.007	14.6
0.005	11.9
0.004	9.8
0.002	7.1

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
7.1		23.6			19.6			34.8		14.9	0.0

Sample Description	Dark brown slightly sandy gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP04
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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	88.2
50.000	80.2
37.500	75.1
28.000	74.0
20.000	71.5
14.000	65.0
10.000	62.4
6.300	58.8
5.000	56.2
3.350	54.3
2.000	50.8
1.180	47.0
0.600	42.8
0.425	40.7
0.300	38.6
0.212	36.4
0.150	34.1
0.063	29.9
0.053	28.6
0.038	26.7
0.019	21.9
0.010	18.0
0.007	14.7
0.005	12.5
0.004	10.4
0.002	7.6

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
7.6		22.3			20.9			37.4		11.8	0.0

Sample Description: Brown slightly sandy gravelly silty CLAY.

Project: Housing Bundle 4 & 5-Finglas Wellmount lot 1 GII PROJECT ID:13061-08-23(1)

Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	15/02/2024

Project No.	NMTL 3697
BH/TP No.	TP04
Sample No.	B
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	92.7
50.000	83.4
37.500	75.7
28.000	73.3
20.000	71.4
14.000	67.3
10.000	65.2
6.300	61.2
5.000	59.0
3.350	57.0
2.000	53.4
1.180	49.9
0.600	45.9
0.425	43.9
0.300	41.7
0.212	39.4
0.150	37.0
0.063	31.8
0.052	30.2
0.037	29.1
0.019	24.2
0.010	19.6
0.007	17.2
0.005	15.5
0.004	13.9
0.002	9.5

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
9.5		22.3			21.7			39.2		7.3	0.0

Sample Description	Dark brown slightly sandy gravelly silty CLAY.					Project No.	NMTL 3697
						BH/TP No.	TP04
Project	Housing Bundle 4 & 5-Finglas Wellmount lot 1			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

NMTL Ltd

LABORATORY REPORT

Contract Number: PSL24/1017

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 1 - Finglas Wellmount

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)

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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
TP02		B	2.00		Brown sandy gravelly CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Housing Bundle 4 & 5 - Lot 1 - Finglas Wellmount

Contract No:
PSL24/1017
Client Ref:
13061-08-23(5)

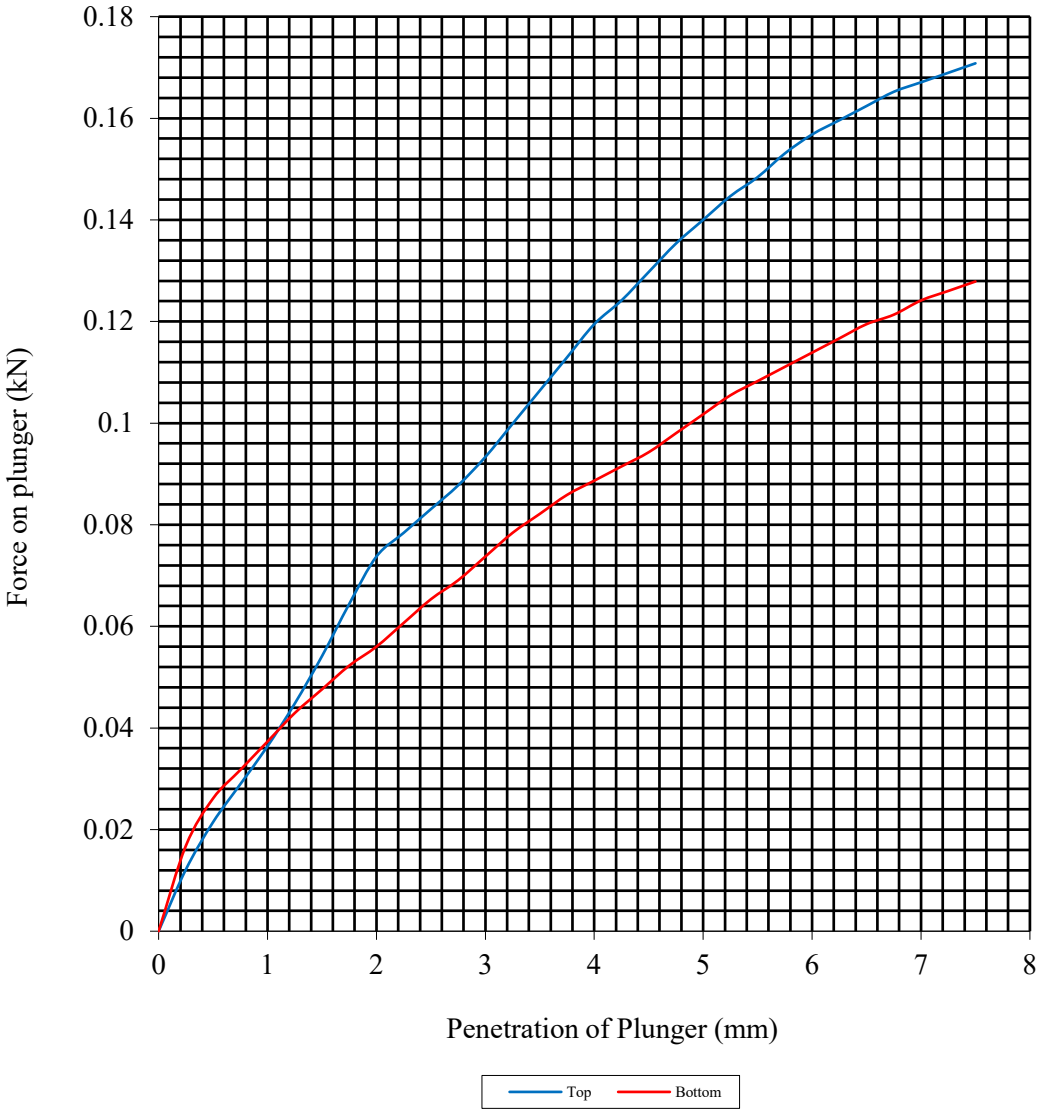
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP02 **Top Depth (m):** 2.00

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

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.20	Sample Top	13	Sample Top	0.7
Bulk Density Mg/m3:	2.20	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	0.5
Dry Density Mg/m3:	1.95	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			12				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Housing Bundle 4 & 5 - Lot 1 - Finglas Wellmount

Contract No: PSL24/1017

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):** 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	2.20
Moisture Content (%)	13
Dry Density (Mg/m3)	1.95
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**48.381 Ohms.m**

DETERMINATION OF THE REDOX POTENTIAL OF SOIL

BS 1377 : Part 3: 1990, Clause 11

pH of sample:	8.5
Reading A (mV)	192
Reading B (mV)	192
Temperature of specimen at time of test (^{o}C)	NA
Testing Method.	Calomel Reference Probe
Redox Potential (mV)	**530**

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

Attention :	Diarmaid MagLochlainn
Date :	12th January, 2024
Your reference :	13061-08-23
Our reference :	Test Report 24/42 Batch 1
Location :	Housing Bundle Finglas Wellmount - Lot 1 (AKA
Date samples received :	3rd January, 2024
Status :	Final Report
Issue :	202401121015

Sixteen samples were received for analysis on 3rd January, 2024 of which sixteen 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 - 75.296 kg of CO2

Scope 1&2&3 emissions - 177.944 kg of CO2

Authorised By:

Liza Klebe
Project Co-ordinator

Client Name: Ground Investigations Ireland **Report : Solid**
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fir **Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	WSBH01	WSBH01	WSBH01	WSBH02	WSBH02	WSBH02	WSBH03	WSBH03	WSBH03	WSBH04			
Depth	0.00-1.00	1.00-2.00	2.00-2.50	0.00-1.00	1.00-2.00	2.00-2.60	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
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	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023			
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	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024			
Antimony	2	2	2	4	2	1	2	2	1	2	<1	mg/kg	TM30/PM15
Arsenic #	9.4	9.5	9.3	17.4	9.4	9.4	10.6	9.3	12.4	13.1	<0.5	mg/kg	TM30/PM15
Barium #	43	70	42	111	55	46	59	50	56	63	<1	mg/kg	TM30/PM15
Cadmium #	1.8	2.0	1.9	3.6	2.0	2.0	1.8	1.9	1.3	2.1	<0.1	mg/kg	TM30/PM15
Chromium #	13.0	15.4	14.6	34.2	17.3	15.1	14.2	12.7	13.8	20.7	<0.5	mg/kg	TM30/PM15
Copper #	25	28	25	39	27	26	29	26	26	38	<1	mg/kg	TM30/PM15
Lead #	14	17	14	33	16	14	17	15	14	22	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	3.4	3.4	2.9	5.2	3.1	3.2	3.3	3.0	3.7	3.4	<0.1	mg/kg	TM30/PM15
Nickel #	35.7	43.9	37.2	71.6	44.0	34.9	38.8	40.8	35.7	54.5	<0.7	mg/kg	TM30/PM15
Selenium #	<1	2	5	3	<1	3	<1	<1	3	<1	<1	mg/kg	TM30/PM15
Zinc #	65	90	74	130	83	73	82	73	67	104	<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 #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
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
Fluoranthene #	<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
Pyrene #	<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
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<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
Indeno(123cd)pyrene #	<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
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	<0.04	<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 #	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<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
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<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	101	100	97	100	98	101	101	99	97	95	<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	<30	64	<30	<30	82	<30	<30	70	<30	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland **Report : Solid**
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fir **Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	WSBH01	WSBH01	WSBH01	WSBH02	WSBH02	WSBH02	WSBH03	WSBH03	WSBH03	WSBH04			
Depth	0.00-1.00	1.00-2.00	2.00-2.50	0.00-1.00	1.00-2.00	2.00-2.60	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
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	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023			
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	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024			
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<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 SV	<0.1	<0.1	<0.1 SV	<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 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<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	2.2	<0.2	<0.2	4.8	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	<4	<4	7	<4	<4	10	<4	<4	12	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	<7	23	19	<7	<7	26	<7	<7	22	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	<7	<7	38	<7	<7	44	<7	<7	31	<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_CU+HS_1D_AL)	<26	<26	64	<26	<26	82	<26	<26	70	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_CU_1D_AL)	<10	23	39	<10	<10	41	<10	<10	45	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_CU_1D_AL)	<10	<10	26	<10	<10	25	<10	<10	22	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<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 SV	<0.1	<0.1	<0.1 SV	<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 SV	<0.1	<0.1	<0.1 SV	<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	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	<52	<52	64	<52	<52	82	<52	<52	70	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR)#	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_CU_1D_AR)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_CU_1D_AR)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE#	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Benzene#	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Toluene#	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	<5 SV	29	<5	ug/kg	TM36/PM12
Ethylbenzene#	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
m/p-Xylene#	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
o-Xylene#	<5	<5	<5 SV	<5	<5	<5 SV	<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 Wellmount - Lot 1 (AKA Wellmount Fir
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	WSBH01	WSBH01	WSBH01	WSBH02	WSBH02	WSBH02	WSBH03	WSBH03	WSBH03	WSBH04			
Depth	0.00-1.00	1.00-2.00	2.00-2.50	0.00-1.00	1.00-2.00	2.00-2.60	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
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	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023			
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	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024			
Natural Moisture Content	13.0	14.8	14.4	25.0	14.7	8.9	12.9	13.1	8.0	17.9	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	11.5	12.9	12.6	20.0	12.8	8.2	11.5	11.6	7.4	15.2	<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
Chromium III	13.0	15.4	14.6	34.2	17.3	15.1	14.2	12.7	13.8	20.7	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.31	0.37	0.65	0.73	0.34	0.60	0.25	0.33	0.68	0.51	<0.02	%	TM21/PM24
pH #	8.80	8.72	8.69	8.44	8.65	8.48	8.71	8.75	8.53	8.54	<0.01	pH units	TM73/PM11

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 Wellmount - Lot 1 (AKA Wellmount Fir
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

Report : **Solid**
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	57-60	61-64					LOD/LOR	Units	Method No.
Sample ID	WSBH04	WSBH04	BH05	BH05	BH06	BH06							
Depth	1.00-2.00	2.00-3.00	0.20-1.10	1.10-2.00	0.20-0.80	1.00-2.00							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	20/12/2023	20/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024							
Antimony	2	2	2	2	2	3					<1	mg/kg	TM30/PM15
Arsenic #	11.9	8.7	14.9	11.0	13.5	16.6					<0.5	mg/kg	TM30/PM15
Barium #	44	74	113	49	108	100					<1	mg/kg	TM30/PM15
Cadmium #	1.8	1.8	2.7	2.1	2.4	2.3					<0.1	mg/kg	TM30/PM15
Chromium #	18.4	13.6	22.6	15.7	22.7	26.4					<0.5	mg/kg	TM30/PM15
Copper #	27	26	44	31	47	61					<1	mg/kg	TM30/PM15
Lead #	14	18	51	17	53	63					<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	0.2	<0.1	0.2	0.2					<0.1	mg/kg	TM30/PM15
Molybdenum #	3.0	3.5	3.4	3.0	3.5	4.0					<0.1	mg/kg	TM30/PM15
Nickel #	39.5	37.3	48.1	39.8	42.6	60.5					<0.7	mg/kg	TM30/PM15
Selenium #	1	4	2	1	1	2					<1	mg/kg	TM30/PM15
Zinc #	86	77	126	84	209	163					<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<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	mg/kg	TM4/PM8
Acenaphthene #	<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	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03					<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	0.08	<0.03	<0.03	0.10					<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	0.07	<0.03	<0.03	0.10					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	0.08	<0.06	<0.06	0.12					<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	0.06	<0.02	<0.02	0.09					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	0.10	<0.07	<0.07	0.14					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	0.06	<0.04	<0.04	0.08					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	0.07					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<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	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	0.24	<0.22	<0.22	0.39					<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64	0.70					<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	0.07	<0.05	<0.05	0.10					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	0.03	<0.02	<0.02	0.04					<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1					<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	101	100	98	96	98	101					<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	77	<30	<30	<30	<30					<30	mg/kg	TM5/PM8/PM16

Client Name: Ground Investigations Ireland **Report : Solid**
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fir **Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64					LOD/LOR	Units	Method No.
Sample ID	WSBH04	WSBH04	BH05	BH05	BH06	BH06							
Depth	1.00-2.00	2.00-3.00	0.20-1.10	1.10-2.00	0.20-0.80	1.00-2.00							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	20/12/2023	20/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024							
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL)#	<0.1	0.4 SV	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	<0.2	2.3	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	<4	9	<4	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	<7	22	<7	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	<7	44	<7	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	<26	78	<26	<26	<26	<26					<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	0.4 SV	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_CU_1D_AL)	<10	45	<10	<10	<10	<10					<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_CU_1D_AL)	<10	31	<10	<10	<10	<10					<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	<0.1	0.2 SV	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	<0.1	<0.1 SV	<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	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	<7	<7	<7	<7	<7	16					<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	<7	<7	<7	<7	<7	51					<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	<26	<26	<26	<26	<26	67					<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	<52	78	<52	<52	<52	67					<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR)#	<0.1	0.2 SV	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_CU_1D_AR)	<10	<10	<10	<10	<10	28					<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_CU_1D_AR)	<10	<10	<10	<10	<10	29					<10	mg/kg	TM5/PM8/PM16
MTBE#	13	108 SV	<5	22	<5	28					<5	ug/kg	TM36/PM12
Benzene#	<5	<5 SV	<5	<5	<5	<5					<5	ug/kg	TM36/PM12
Toluene#	19	166 SV	22	19	43	<5					<5	ug/kg	TM36/PM12
Ethylbenzene#	<5	<5 SV	<5	<5	<5	<5					<5	ug/kg	TM36/PM12
m/p-Xylene#	<5	<5 SV	<5	<5	<5	<5					<5	ug/kg	TM36/PM12
o-Xylene#	<5	<5 SV	<5	<5	<5	<5					<5	ug/kg	TM36/PM12
PCB 28#	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 52#	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 101#	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 118#	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 138#	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 153#	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 180#	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
Total 7 PCBs#	<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 Wellmount - Lot 1 (AKA Wellmount Fir
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	57-60	61-64					LOD/LOR	Units	Method No.
Sample ID	WSBH04	WSBH04	BH05	BH05	BH06	BH06							
Depth	1.00-2.00	2.00-3.00	0.20-1.10	1.10-2.00	0.20-0.80	1.00-2.00							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	20/12/2023	20/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024							
Natural Moisture Content	11.3	10.0	21.1	14.2	20.5	31.0					<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	10.2	9.1	17.4	12.4	17.0	23.7					<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3					<0.3	mg/kg	TM38/PM20
Chromium III	18.4	13.6	22.6	15.7	22.7	26.4					<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.43	0.70	1.66	0.39	1.35	2.57					<0.02	%	TM21/PM24
pH #	8.75	8.90	8.45	8.66	8.54	8.37					<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fir
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	WSBH01	WSBH01	WSBH01	WSBH02	WSBH02	WSBH02	WSBH03	WSBH03	WSBH03	WSBH04			
Depth	0.00-1.00	1.00-2.00	2.00-2.50	0.00-1.00	1.00-2.00	2.00-2.60	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
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	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023			
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	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024			
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 #	<0.003	<0.003	0.004	<0.003	0.004	0.005	<0.003	0.003	0.026	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	<0.03	0.04	<0.03	0.04	0.05	<0.03	<0.03	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	<0.0015	<0.0015	<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	<0.015	<0.015	<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 #	0.010	<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) #	0.10	<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 #	0.006	0.006	0.015	<0.002	0.007	0.015	0.004	0.006	0.014	0.003	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.06	0.06	0.15	<0.02	0.07	0.15	0.04	0.06	0.14	0.03	<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	0.013	<0.003	<0.003	0.009	<0.003	<0.003	0.038	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	0.13	<0.03	<0.03	0.09	<0.03	<0.03	0.38	<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	0.00003	<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	0.0003	<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	0.3	<0.3	<0.3	0.3	<0.3	<0.3	0.4	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	4	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<0.5	<0.5	2.6	<0.5	0.5	7.9	<0.5	<0.5	29.3	<0.5	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	<5	<5	26	<5	5	79	<5	<5	293	<5	<5	mg/kg	TM38/PM0
Mass of raw test portion	0.1033	0.1011	0.1016	0.1088	0.0998	0.1001	0.0989	0.1014	0.0974	0.1058		kg	NONE/PM17
Chloride #	0.3	<0.3	0.8	0.5	0.5	2.2	0.3	0.4	7.8	0.8	<0.3	mg/l	TM38/PM0
Chloride #	<3	<3	8	5	5	22	<3	4	78	8	<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	<2	<2	<2	<2	<2	<2	<2	<2	<2	3	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	<20	mg/kg	TM60/PM0
pH	6.74	7.14	7.37	7.71	7.79	7.63	7.77	7.78	7.71	7.94	<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 Wellmount - Lot 1 (AKA Wellmount Fir
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	WSBH01	WSBH01	WSBH01	WSBH02	WSBH02	WSBH02	WSBH03	WSBH03	WSBH03	WSBH04			
Depth	0.00-1.00	1.00-2.00	2.00-2.50	0.00-1.00	1.00-2.00	2.00-2.60	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
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	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023			
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	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024			
Total Dissolved Solids #	47	37	39	54	43	41	39	35	92	64	<35	mg/l	TM20/PM0
Total Dissolved Solids #	470	370	390	540	430	410	390	<350	920	640	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fir
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	57-60	61-64					LOD/LOR	Units	Method No.
Sample ID	WSBH04	WSBH04	BH05	BH05	BH06	BH06							
Depth	1.00-2.00	2.00-3.00	0.20-1.10	1.10-2.00	0.20-0.80	1.00-2.00							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	20/12/2023	20/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024							
Dissolved Antimony #	<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	mg/kg	TM30/PM17
Dissolved Arsenic #	<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	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	0.004	0.004	<0.003	0.004	0.005					<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	0.04	0.04	<0.03	0.04	0.05					<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<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	mg/kg	TM30/PM17
Dissolved Chromium #	<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	<0.015	<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	mg/l	TM30/PM17
Dissolved Copper (A10) #	<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	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05					<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.008	0.025	0.003	<0.002	0.003	0.004					<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.08	0.25	0.03	<0.02	0.03	0.04					<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<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	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<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	<0.03					<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	0.005	<0.003					<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	0.05	<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	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<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	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	0.5	<0.3	0.4	0.3					<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	5	<3	4	3					<3	mg/kg	TM173/PM0
Sulphate as SO4 #	1.3	1.5	<0.5	<0.5	0.5	0.5					<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	13	15	<5	<5	5	5					<5	mg/kg	TM38/PM0
Mass of raw test portion	0.1004	0.0968	0.1052	0.1037	0.1109	0.1121						kg	NONE/PM17
Chloride #	0.5	0.4	0.7	0.4	0.7	0.4					<0.3	mg/l	TM38/PM0
Chloride #	5	4	7	4	7	4					<3	mg/kg	TM38/PM0
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09						kg	NONE/PM17
Dissolved Organic Carbon	<2	<2	3	<2	3	3					<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	30	<20	30	30					<20	mg/kg	TM60/PM0
pH	7.96	8.37	8.16	8.06	8.16	8.17					<0.01	pH units	TM73/PM0

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fir
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	57-60	61-64					LOD/LOR	Units	Method No.
Sample ID	WSBH04	WSBH04	BH05	BH05	BH06	BH06							
Depth	1.00-2.00	2.00-3.00	0.20-1.10	1.10-2.00	0.20-0.80	1.00-2.00							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	20/12/2023	20/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024							
Total Dissolved Solids #	42	<35	68	39	67	75					<35	mg/l	TM20/PM0
Total Dissolved Solids #	420	<350	680	390	670	750					<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

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

Client Name: Ground Investigations Ireland **Report :** **EN12457_2**
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fin **Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

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	WSBH01	WSBH01	WSBH01	WSBH02	WSBH02	WSBH02	WSBH03	WSBH03	WSBH03	WSBH04						
Depth	0.00-1.00	1.00-2.00	2.00-2.50	0.00-1.00	1.00-2.00	2.00-2.60	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00						
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	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023						
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	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis																
Total Organic Carbon #	0.31	0.37	0.65	0.73	0.34	0.60	0.25	0.33	0.68	0.51	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025 SV	<0.025	<0.025	<0.025 SV	<0.025	<0.025	<0.025 SV	0.029	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	64	<30	<30	82	<30	<30	70	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	<0.64	<0.64	<0.64	<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 #	<0.03	<0.03	0.04	<0.03	0.04	0.05	<0.03	<0.03	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	<0.015	<0.015	<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	0.0003	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.06	0.06	0.15	<0.02	0.07	0.15	0.04	0.06	0.14	0.03	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 #	0.10	<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	0.13	<0.03	<0.03	0.09	<0.03	<0.03	0.38	<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 #	470	370	390	540	430	410	390	<350	920	640	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1033	0.1011	0.1016	0.1088	0.0998	0.1001	0.0989	0.1014	0.0974	0.1058	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	86.8	89.3	88.3	82.7	89.7	90.2	91.2	88.6	92.9	84.7	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.886	0.889	0.888	0.881	0.89	0.89	0.891	0.888	0.893	0.884	-	-	-		l	NONE/PM17
Moisture Content 105C (% Dry Weight)	15.2	12.0	13.3	21.0	11.5	10.8	9.7	12.9	7.6	18.0	-	-	-	<0.1	%	PM4/PM0
pH #	8.80	8.72	8.69	8.44	8.65	8.48	8.71	8.75	8.53	8.54	-	-	-	<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	<3	<3	<3	<3	<3	<3	4	10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<5	<5	26	<5	5	79	<5	<5	293	<5	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	<3	<3	8	5	5	22	<3	4	78	8	800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland **Report :** EN12457_2
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Fin **Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub
Contact: Diarmaid MagLochlainn
EMT Job No: 24/42

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64					Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	WSBH04	WSBH04	BH05	BH05	BH06	BH06										
Depth	1.00-2.00	2.00-3.00	0.20-1.10	1.10-2.00	0.20-0.80	1.00-2.00										
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T										
Sample Date	20/12/2023	20/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023										
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil										
Batch Number	1	1	1	1	1	1										
Date of Receipt	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024	03/01/2024										
Solid Waste Analysis																
Total Organic Carbon #	0.43	0.70	1.66	0.39	1.35	2.57					3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	0.166 [SV]	<0.025	<0.025	0.043	<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					1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	77	<30	<30	<30	<30					500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	0.24	<0.22	<0.22	0.39					-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	<0.64	<0.64	<0.64	0.70					100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025					0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	<0.03	0.04	0.04	<0.03	0.04	0.05					20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<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	<0.015	<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					2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<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	0.25	0.03	<0.02	0.03	0.04					0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<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					0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<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					0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	0.05	<0.03					4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	420	<350	680	390	670	750					4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	30	<20	30	30					500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1004	0.0968	0.1052	0.1037	0.1109	0.1121					-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	89.3	93.2	86.0	87.1	80.8	80.2					-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.889	0.893	0.885	0.887	0.879	0.878					-	-	-		l	NONE/PM17
Moisture Content 105C (% Dry Weight)	12.0	7.3	16.3	14.8	23.8	24.7					-	-	-	<0.1	%	PM4/PM0
pH #	8.75	8.90	8.45	8.66	8.54	8.37					-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	5	<3	4	3					10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	13	15	<5	<5	5	5					1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	5	4	7	4	7	4					800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland

Matrix : Solid

Reference: 13061-08-23

Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Finglas)

Contact: Diarmaid MagLochlainn

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
24/42	1	WSBH01	0.00-1.00	1-4	No Interpretation Possible
24/42	1	WSBH01	1.00-2.00	5-8	No Interpretation Possible
24/42	1	WSBH01	2.00-2.50	9-12	trace of possible Degraded Diesel, trace of possible Lubricating Oil
24/42	1	WSBH02	0.00-1.00	13-16	No Interpretation Possible
24/42	1	WSBH02	1.00-2.00	17-20	No Interpretation Possible
24/42	1	WSBH02	2.00-2.60	21-24	trace of possible Degraded Diesel, trace of possible Lubricating Oil
24/42	1	WSBH03	0.00-1.00	25-28	No Interpretation Possible
24/42	1	WSBH03	1.00-2.00	29-32	No Interpretation Possible
24/42	1	WSBH03	2.00-3.00	33-36	trace of possible Degraded Diesel, trace of possible Lubricating Oil
24/42	1	WSBH04	0.00-1.00	37-40	No Interpretation Possible
24/42	1	WSBH04	1.00-2.00	41-44	No Interpretation Possible
24/42	1	WSBH04	2.00-3.00	45-48	trace of possible Degraded Diesel, trace of possible Lubricating Oil
24/42	1	BH05	0.20-1.10	49-52	No Interpretation Possible
24/42	1	BH05	1.10-2.00	53-56	No Interpretation Possible
24/42	1	BH06	0.20-0.80	57-60	No Interpretation Possible
24/42	1	BH06	1.00-2.00	61-64	trace of possible PAHs, possible Naturally Occurring Compounds

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Finglas)
Contact: Diarmaid MagLochlainn

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
24/42	1	WSBH01	0.00-1.00	4	Mathew Day	04/01/2024	**General Description (Bulk Analysis)**	brown soil
					Mathew Day	04/01/2024	**Asbestos Fibres**	NAD
					Mathew Day	04/01/2024	**Asbestos ACM**	NAD
					Mathew Day	04/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH01	1.00-2.00	8	Catherine Coles	05/01/2024	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	05/01/2024	**Asbestos Fibres**	NAD
					Catherine Coles	05/01/2024	**Asbestos ACM**	NAD
					Catherine Coles	05/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH01	2.00-2.50	12	Emily Anderton	04/01/2024	**General Description (Bulk Analysis)**	Brown soil and clay with stones
					Emily Anderton	04/01/2024	**Asbestos Fibres**	NAD
					Emily Anderton	04/01/2024	**Asbestos ACM**	NAD
					Emily Anderton	04/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH02	0.00-1.00	16	Charlotte Taylor	04/01/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	04/01/2024	**Asbestos Fibres**	NAD
					Charlotte Taylor	04/01/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	04/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH02	1.00-2.00	20	Mathew Day	04/01/2024	**General Description (Bulk Analysis)**	brown soil
					Mathew Day	04/01/2024	**Asbestos Fibres**	NAD
					Mathew Day	04/01/2024	**Asbestos ACM**	NAD
					Mathew Day	04/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH02	2.00-2.60	24	Mathew Day	04/01/2024	**General Description (Bulk Analysis)**	brown soil
					Mathew Day	04/01/2024	**Asbestos Fibres**	NAD
					Mathew Day	04/01/2024	**Asbestos ACM**	NAD
					Mathew Day	04/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH03	0.00-1.00	28	Emily Anderton	05/01/2024	**General Description (Bulk Analysis)**	Brown soil and clay with stones
					Emily Anderton	05/01/2024	**Asbestos Fibres**	NAD
					Emily Anderton	05/01/2024	**Asbestos ACM**	NAD
					Emily Anderton	05/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH03	1.00-2.00	32	Catherine Coles	04/01/2024	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	04/01/2024	**Asbestos Fibres**	NAD
					Catherine Coles	04/01/2024	**Asbestos ACM**	NAD
					Catherine Coles	04/01/2024	**Asbestos Type**	NAD

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Finglas)
Contact: Diarmaid MagLochlainn

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
24/42	1	WSBH03	2.00-3.00	36	Catherine Coles	04/01/2024	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	04/01/2024	**Asbestos Fibres**	NAD
					Catherine Coles	04/01/2024	**Asbestos ACM**	NAD
					Catherine Coles	04/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH04	0.00-1.00	40	Emily Anderton	05/01/2024	**General Description (Bulk Analysis)**	Brown soil and clay with stones
					Emily Anderton	05/01/2024	**Asbestos Fibres**	NAD
					Emily Anderton	05/01/2024	**Asbestos ACM**	NAD
					Emily Anderton	05/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH04	1.00-2.00	44	Charlotte Taylor	04/01/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	04/01/2024	**Asbestos Fibres**	NAD
					Charlotte Taylor	04/01/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	04/01/2024	**Asbestos Type**	NAD
24/42	1	WSBH04	2.00-3.00	48	Emily Anderton	04/01/2024	**General Description (Bulk Analysis)**	Brown soil with clay and stones
					Emily Anderton	04/01/2024	**Asbestos Fibres**	NAD
					Emily Anderton	04/01/2024	**Asbestos ACM**	NAD
					Emily Anderton	04/01/2024	**Asbestos Type**	NAD
24/42	1	BH05	0.20-1.10	52	Emily Anderton	05/01/2024	**General Description (Bulk Analysis)**	Brown soil and stones
					Emily Anderton	05/01/2024	**Asbestos Fibres**	NAD
					Emily Anderton	05/01/2024	**Asbestos ACM**	NAD
					Emily Anderton	05/01/2024	**Asbestos Type**	NAD
24/42	1	BH05	1.10-2.00	56	Catherine Coles	04/01/2024	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	04/01/2024	**Asbestos Fibres**	NAD
					Catherine Coles	04/01/2024	**Asbestos ACM**	NAD
					Catherine Coles	04/01/2024	**Asbestos Type**	NAD
24/42	1	BH06	0.20-0.80	60	Catherine Coles	04/01/2024	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	04/01/2024	**Asbestos Fibres**	NAD
					Catherine Coles	04/01/2024	**Asbestos ACM**	NAD
					Catherine Coles	04/01/2024	**Asbestos Type**	NAD
24/42	1	BH06	1.00-2.00	64	Charlotte Taylor	04/01/2024	**General Description (Bulk Analysis)**	brown soil/stones
					Charlotte Taylor	04/01/2024	**Asbestos Fibres**	NAD
					Charlotte Taylor	04/01/2024	**Asbestos ACM**	NAD
					Charlotte Taylor	04/01/2024	**Asbestos Type**	NAD

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Finglas Wellmount - Lot 1 (AKA Wellmount Finglas)
Contact: Diarmaid MagLochlainn

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/42						

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.

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: 24/42

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.	Yes		AD	Yes

EMT Job No: 24/42

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
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		AR	Yes
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

EMT Job No: 24/42

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
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
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	

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Attention :	Diarmaid MagLochlainn
Date :	13th February, 2024
Your reference :	13061-08-23
Our reference :	Test Report 24/1748 Batch 1
Location :	Housing Bundle Lot 1 - Finglas Wellmount
Date samples received :	1st February, 2024
Status :	Final Report
Issue :	202402131528

Five samples were received for analysis on 1st February, 2024 of which five 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 - 4.706 kg of CO2

Scope 1&2&3 emissions - 11.122 kg of CO2

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Lot 1 - Finglas Wellmount
Contact: Diarmaid MagLochlainn
EMT Job No: 24/1748

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						LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP03	TP04	TP04								
Depth	0.50	1.00	0.50	0.50	1.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	29/01/2024	29/01/2024	29/01/2024	29/01/2024	29/01/2024								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	01/02/2024	01/02/2024	01/02/2024	01/02/2024	01/02/2024								
Sulphate as SO4 (2:1 Ext) #	0.0093	0.0066	0.3988	0.0111	0.0070						<0.0015	g/l	TM38/PM20
Organic Matter	1.5	0.6	3.6	2.0	1.0						<0.2	%	TM21/PM24
pH #	8.40	8.73	8.37	8.42	8.65						<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

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

Notification of Deviating Samples

Client Name: Ground Investigations Ireland
Reference: 13061-08-23
Location: Housing Bundle Lot 1 - Finglas Wellmount
Contact: Diarmaid MagLochlainn

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 24/1748						

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/1748

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: 24/1748

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.			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: 2013l	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
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