

Appendix 7.2

Ground Investigations Ireland Ltd., Catherinestown House, Hazelhatch Road, Newcastle, Co Dublin. Tel: 01 601 5175 / 5176 | Fax: 01 601 5173 Email: info@gii.ie | Web: gii.ie

## **Ground Investigations Ireland**

# Cornelscourt

# **Ground Investigation Report**

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Ground Investigations Ireland Ltd., Catherinestown House, Hazelhatch Road, Newcastle, Co Dublin. Tel: 01 601 5175 / 5176 | Fax: 01 601 5173 Email: info@gii.ie | Web: gii.ie

### CONTENTS

1.0	Preamble4
2.0	Overview4
2.1.	Background4
2.3.	Purpose and Scope5
3.0	Subsurface Exploration5
3.1.	General5
3.2.	Trial Pits6
3.3.	Soakaway Testing6
3.1.	Dynamic Probing
3.2.	Window Sampling6
3.3.	Cable Percussion Boreholes7
3.4.	Rotary Boreholes7
3.5.	Insitu Plate Bearing Test8
3.6.	Surveying8
3.7.	Groundwater/Gas Monitoring Installations8
3.8.	Laboratory Testing9
4.0	Ground Conditions9
4.1.	General9
4.2.	Insitu Strength Testing10
4.3.	Groundwater10
4.4.	Laboratory Testing11
5.0	Recommendations & Conclusions12
5.1.	General12
5.2.	Foundations12
5.3.	External Pavements13
5.4.	Excavations13
5.5.	Soakaway Design14



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### **APPENDICES**

- Appendix 1 Site Location Plan
- Appendix 2 Trial Pit Records
- Appendix 3 Soakaway Records
- Appendix 4 Dynamic Probing Records
- Appendix 5 Window Sample Records
- Appendix 6 Cable Percussion & Rotary Core Borehole Records
- Appendix 7 Plate Bearing Test Records (CBR)
- Appendix 8 Laboratory Testing
- Appendix 8.1 Geotechnical Laboratory Testing
- Appendix 8.2 Rock Laboratory Testing
- Appendix 8.3 Environmental Laboratory Testing
- Appendix 9 Groundwater Monitoring

#### 1.0 Preamble

On the instructions of DBFL Consulting Engineers, a site investigation was carried out by Ground Investigations Ireland Ltd., between February and March 2019 at the site of the proposed site in Cornelscourt, Dublin 18.

#### 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 greenfield however a portion in one corner of the site is occupied by a temporary car park. The proposed construction is envisaged to consist of conventional foundations and pavement make up with some local excavations for services and plant. A basement is proposed as part of the proposed scheme which will require excavation of approximately 4m BGL on the Bray Road portion of the site reducing to near ground level closer to the N11 side of the site.

#### 2.1. Site Location & Layout

The site, which is the subject of the ground investigation, is located at Cornelscourt, Dublin 18. The site at the time of the investigation was comprised of open grassland. The site is bounded to the to the north and north east by the N11. There is an AIB branch located adjacent to the north west site boundary. The site is bounded by housing on the eastern, southern and south western boundary. There is a filling station located adjacent to the western site boundary. At the time of the Ground investigation there is an area of Japanese Knotweed located on the eastern site boundary. The north western section of the site had been recently covered with a layer of Clay which was soft and not suitable for traffic at the time of the investigation. BH01 was not completed as it was unable to access due to the presence this soft Clay.

The adjacent filling station was located at an elevation higher than the site and was deemed to be upgradient of the site hydraulically.

#### 2.2. Site History

GII carried out a review of the on-line database of historical maps held by the (OSI). These included the 6inch maps that were produced between 1829 and 1842, the 25-inch maps that were produced between 1888 and 1913 and the 6-inch Cassini Maps that were produced between the 1830's and 1930's.

The historic maps indicate that the site was agricultural land prior to development. On the 6-inch map the village of Cornelscourt is indicated but the site is as yet undeveloped. On the 25-inch map the site is almost entirely undeveloped with a small building on the site footprint adjacent to the present day filling station. The building use is unknown.

GII reviewed the aerial photograph record between 1995 and present day (OSI and Google Imagery). The photos from 1995 onwards indicate that the site has been undeveloped since then with the exception of the development of what appears from the photographs to be a temporary car park in the 2016. Based on the aerial photograph approximately 3,000 square meters of the site in the north western corner was stripped of topsoil to allow the construction of a temporary carpark in that area. A berm appears to have been constructed with the stripped material to the east of the carpark.

At the time of the site inspection this berm and the carpark were absent suggesting that the berm had been respreads across the carpark area.

#### 2.3. 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 16 No. Trial Pits to a maximum depth of 4.5m BGL
- Carry out 2 No. Foundation Pits to determine existing foundation details
- Cary out 3 No. Infiltration tests to BRE Digest 365 to determine soil infiltration values
- Carry out 13 No. Window Sample Boreholes to recover soil samples
- Carry out 12 No. Dynamic Probes to determine the soil strength/density characteristics
- Carry out 9 No. Cable Percussion boreholes to a maximum depth of 6.0m BGL
- Carry out 10 No. Rotary Core Boreholes to a maximum depth of 17.4m BGL
- Carry out of 4 No. Plate Bearing Tests to determiner CBR/sub grade modulus parameters
- Installation of 4 No. Groundwater monitoring wells & associated monitoring
- Collection and analysis of subsoil & groundwater samples
- 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 insitu testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.

The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

#### 3.2. Trial Pits

The trial pits were excavated using a JCB 3CX excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by a Geotechnical Engineer/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. TP15, TP18 and TP19 which were foundation pits to determine foundations for the boundary wall along the south western boundary of the site were not completed due to the absence of the boundary wall at these locations. An additional pit TP21 was completed between these locations to get a soil profile along this portion of the site. Foundations for the pits competed at TP05 and TP14 are included with the associated logs in the 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.

#### 3.1. Dynamic Probing

The dynamic probe tests (DPH) were carried out at the locations shown in the location plan in Appendix 1 in accordance with B.S. 1377: Part 9 1990. The test consists of mechanically driving a cone with a 50kg weight in 100mm intervals and monitoring the number of blows required. An equivalent Standard Penetration Test (SPT) 'N' value may be calculated by dividing the total number of blows over a 300mm drive length by 1.5. The dynamic probe logs are provided in Appendix 4 of this Report.

#### 3.2. Window Sampling

The window sampling was carried out at the locations shown in the location plan in Appendix 1 using a Geotec 10 percussion drilling rig. The window 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 or 50kg weight falling a height of 760mm (DPSH) or 500mm (DPH). Upon completion of the 1m sample, the tube is withdrawn and the plastic liner removed and sealed for logging and sub sampling by a Geotechnical Engineer/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. The window sample records are provided in Appendix 5 of this Report.

#### 3.3. Cable Percussion Boreholes

The Cable Percussion Boreholes were drilled using a Dando 2000 drilling rig with regular in-situ testing and sampling undertaken to facilitate the production of geotechnical logs and laboratory testing.

The standard method of boring in soil for site investigation is known as the Cable Percussion method. It consists of using a Shell in non cohesive soils and a clay cutter in cohesive soils, both operated on a wire cable. Very hard soils, boulders and other hard obstructions are broken up by chiselling and the fragments removed with the Shell. Where ground conditions made it necessary, the borehole was lined with 200mm diameter steel casing. While the use of the Cable Percussion method of boring gives the maximum data on soil conditions, some mixing of laminated soil is inevitable. For this reason, thin lenses of granular material may not be noticed. Disturbed samples were taken from the boring tools at suitable depths, so that there is a representative sample at the top of each change in stratum and thereafter at regular intervals down the borehole until the next stratum was encountered. The disturbed samples were then sealed and sent to the laboratory where they were visually examined to confirm the description of the relevant strata.

Standard Penetration Tests were carried out in the boreholes. The results of these tests, together with the depths at which the tests were taken are shown on the accompanying borehole records. The test consists of a thick wall sampler tube, 50mm external diameter, being driven into the soil by a monkey weighing 63.5kg and with a free drop of 760mm. For gravels and glacial till the driving shoe was replaced by a solid 60° cone. The Standard Penetration Test number referred to as the 'N' value is the number of blows required to drive the tube 300mm, after an initial penetration of 150mm. The number gives a guide to the consistency of the soil and can also be used to estimate the relative strength/density at the depth of the test and also to estimate the bearing capacity and compressibility of the soil. The cable percussion borehole logs are provided in Appendix 6 of this Report.

#### 3.4. Rotary Boreholes

The rotary coring was carried out by a track mounted T44 Beretta rig at the locations shown on the location plan in Appendix 1. The rotary boreholes were completed from the ground surface or alternatively, where noted on the individual borehole log, from the base of the cable percussion borehole where a temporary liner was installed to facilitate follow-on rotary coring.

The T44 Beretta is equipped with rubber tracks which allow for short travel on pavement surfaces avoiding any damage to the surface. The T44 Beretta utilises a triple tube core barrel system operated using a wireline drilling process. The outer barrel is rotated by the drill rods and at its lower end, carries the coring bit. The inner barrel is mounted on a swivel so that it does not rotate during the process. The third barrel or liner is placed within the second one to retain the core intact and to preserve as much as possible the fabric of the drilling stratum. The core is cut by the coring bit and passes to the inner liner. The core is brought up to the surface within the inner barrel on a small diameter wire rope or line attached to the "overshoot" recovery tool which is then placed into a core box in order of recovery. A drilling fluid, typically air mist or water flush is passed from the surface through hollow drill rods to the drill bit, and is used to cool the drill bit. Temporary casing is used in some situations to support unstable ground or to seal off fissures or voids. It should be noted that the rotary coring can only achieve limited recovery in overburden, particularly granular or weakly cemented strata due to the flushing medium washing away the cohesive fraction during coring. The recovery achieved, where required is noted on the borehole logs and core photographs are provided to allow assessment of the core recovered. Standard Penetration Tests are carried out where instructed or as outlined in the specification in the boreholes. The results of these tests, together with the depths at which the tests were taken are shown on the accompanying borehole records. The test consists of a thick wall sampler tube, 50mm external diameter, being driven into the soil by a monkey weighing 63.5kg and with a free drop of 760mm. For gravels and glacial till the driving shoe was replaced by a solid 60° 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 rotary borehole logs are provided in Appendix 6 of this Report.

#### 3.5. Insitu Plate Bearing Test

The plate bearing tests were carried out using a 305mm or 450mm diameter plate at the locations shown on the site plan in Appendix 1. The plate was loaded in increments using a hydraulic jack and an excavator to provide a reaction and the displacement was monitored in accordance with BS1377 Part 9 using independently mounted digital strain gauges. The constrained modulus and equivalent CBR are calculated in accordance with HD29/75 and are provided on the test reports in Appendix 7 of this Report.

#### 3.6. Surveying

The exploratory hole locations have been recorded using a Trimble R10 GNSS System which records the coordinates and elevation of the locations to ITM or Irish National Grid as required by the project specification. The coordinates and elevations are provided on the exploratory hole logs in the appendices of this Report.

#### 3.7. Groundwater/Gas Monitoring Installations

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

#### 3.8. Laboratory Testing

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

Environmental testing, the Rialta Suite including Solid Waste and Leachate Waste Acceptance Criteria (WAC) testing, pH and sulphate testing was carried out by Exova's Laboratory in the UK.

Geotechnical testing consisting of moisture content, Atterberg limits, Particle Size Distribution (PSD) tests were carried out in NMTL's Geotechnical Laboratory in Carlow.

Rock strength testing including Point Load (Is<sub>50</sub>) and Unconfined Compressive Strength (UCS) testing is underway in Trinity College Dublin's Geotechnical Laboratory. The results of the completed laboratory testing are included in Appendix 8 of this Report.

#### 4.0 Ground Conditions

#### 4.1. General

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

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

- Topsoil/Surfacing
- Made Ground
- Cohesive Deposits
- Granular Deposits
- Bedrock

**TOPSOIL:** Topsoil was encountered in all the exploratory holes and was present to a maximum depth of 0.3m BGL. Tarmac surfacing was present typically to a depth of 0.05m BGL.

**MADE GROUND:** Made Ground deposits were encountered occasionally beneath the Topsoil and was present to depths of between 0.5m and 1.1m BGL. These deposits were described generally as *brown* sandy slightly gravelly Clay with frequent cobbles and boulders and contained occasional fragments of concrete, red brick, glass and plastic.

**COHESIVE DEPOSITS:** Cohesive deposits were encountered beneath the Made Ground and were described typically as *brown or brown mottled grey sandy gravelly CLAY with occasional cobbles* overlying a *stiff brown/orange/grey sandy gravelly CLAY with occasional cobbles and boulders*. In TP20 a *stiff to very stiff black slightly sandy gravelly CLAY with rare cobbles and boulders* was encountered below 2.5m BGL. The secondary sand and gravel constituents varied across the site and with depth, with granular

lenses occasionally present in the glacial till matrix. The strength of the cohesive deposits was soft or soft to firm and typically increased with depth and was firm to stiff or stiff below 1.5m to 2.0m 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:** The granular deposits were encountered within the cohesive deposits in TP21 and in BH02 and were typically described as *Grey/brown clayey sandy fine to coarse GRAVEL or gravelly Sand*. The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs. The rotary boreholes cored the overburden deposits where the cable percussion boreholes refused on obstructions at shallower depths than the bedrock. The core recovery ranged from 0% to 50% in the sandy gravelly Clay deposits with the fines material often washed away by the water flush used to cool and remove the cuttings from the drilling bit. The overburden material has been described with the drillers notes of the strata encountered and the Engineers assessment of recovery achieved. There is a possibility of granular lenses present within the cohesive deposits where the rotary coring continued from the base of the cable percussion borehole to the top of rock.

**BEDROCK**: The rotary core boreholes recovered Granite Bedrock in each of the boreholes at depths of 2.6m to 12.0m BGL. The depth to rock varies from 2.85m BGL (49.65m OD) in BH10 and is deeper towards the north and north eastern portion of the site to a maximum of 12.0m BGL (36.7m OD) in BH02 and 9.7m BGL (38.62m OD) in BH03. The total core recovery is good in the granite bedrock, typically 100% with some of the uppermost runs dropping to 80 or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in each of the boreholes. The strength of the stratum varies from Extremely weak to strong as noted on the logs with some portions of the core recovered as non-intact. The weathering is noted on the core logs and is typically distinctly weathered to partially weathered with occasional zones of where the granite was unweathered.

#### 4.2. Insitu Strength Testing

The correlated DPH blow counts indicate that the overburden deposits are soft or soft to firm to depth of 1.0m to 1.2m BGL typically and become firm or firm to stiff with depth. DP03, DP06, DP07, DP09 had low blow counts indicating locally deeper soft to firm or firm cohesive deposits to a depth of 1.7m to 2.0m BGL.

#### 4.3. Groundwater

Groundwater strikes, if encountered during the investigation, are noted on the exploratory hole logs where they occurred and where possible drilling was suspended for twenty minutes to allow the subsequent rise in groundwater to be recorded. We would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the tide, time of year, rainfall, nearby construction and other factors. For this reason, standpipes were installed in BH03, BH07, BH08 and BH11 to allow the equilibrium groundwater level to be determined. The groundwater monitoring is included in Appendix 9 of this Report.

#### 4.4. 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 and intermediate plasticity. The Particle Size Distribution tests confirm that generally the cohesive deposits are well-graded with percentages of sands and gravels ranging between 10% and 40% generally with fines contents of 11 to 65%.

The rock testing carried out on samples recovered from the boreholes reported Unconfined Compressive Strength (UCS) values ranging between 16.9 and 27.7 MPa while the point load testing gave Is50 values ranging between 0.17 to 4.6 MPa. The Is<sub>50</sub> results correlate to the UCS values using a factor of approximately 20, giving values of 3.4 MPa and 93.2 MPa. These results correlate to the strength descriptions ranging between of Extremely Weak to Strong and confirming the variability of this stratum and the descriptions on the logs. The average of the UCS testing and associated correlated values from the point loading suggest the rock is typically on the border of weak to medium strong.

The pH and sulphate testing carried out indicate that pH results are near neutral and that the water soluble sulphate results are 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.

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. 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. The waste classification report is included under the cover of a sperate report by Ground Investigations Ireland.

The full laboratory report, which includes a section highlighting the waste acceptance criteria, is included in Appendix 8.

#### 5.0 Recommendations & Conclusions

#### 5.1. General

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

#### 5.2. Foundations

An allowable bearing capacity of 1000 kN/m<sup>2</sup> is recommended for conventional strip or pad foundations on the intact Granite stratum where present at a shallow depth. For the proposed multi-storey building with a basement, a portion of the building foundations will be on rock while the north eastern portion towards the N11 will be at the level of the cohesive deposits. Piles are recommended to bring the foundations to the same stratum as the southern portion due to the depth to rock increasing from 2.85m BGL (49.56m OD) in BH10 to 5.8m BGL (44.51m OD) in BH05 and 12m BGL (36.7m OD) in BH02. This would avoid problems with differential settlement should the foundations bear on strata of differing stiffness. The type, size and depth of the pile foundations should be confirmed by a specialist piling contractor based on the loading from the proposed building. The floor slab is recommended be suspended and also supported on the building piles.

In any part of the site, should part of the foundation bear on differing strata consisting of either cohesive, granular or bedrock units, we would recommend that all the foundations of the structure in question be lowered to the competent deeper stratum.

Where the shallow foundations are proposed on the cohesive deposits in the western portion of the site, an allowable bearing capacity of 125 kN/m<sup>2</sup> is recommended on the stiff cohesive deposits at a depth of 1.2m BGL, with the exception of the locations of DP03 to DP04 and DP06 to DP10 inclusive where soft or firm cohesive deposits are present to deeper depths. The table below indicates to what depth lean mix trench fill to a is recommended to achieve the recommended allowable bearing capacity. A reduced allowable bearing capacity of 70 kN/m<sup>2</sup> is recommended at shallower depths if appropriate for the foundation design to avoid deeper excavations to the stiff cohesive deposits. The trial pit logs should be consulted to ensure the stability of the proposed excavations will facilitate the excavation to the proposed depth, as some of the trial pits experienced side wall instability during excavation.

	Allowable Bearing Capacities (ABC) kN/m2													
Probe	ABC	Depth	Comment	Probe	ABC	Depth	Comment							
No.	kN/m2	m BGL		No.	kN/m2	m BGL								
DP01	125	1.2		DP07	125	1.8	very soft 1.1m to 1.6m							
DP02	125	1.2		DP08	125	2	70kN/m2 @ 1.2m							
DP03	125	2	70kN/m2 @ 1.6m	DP09	125	2	Soft to 2.0m							
DP04	125	2	70kN/m2 @ 1.0m	DP10	125	1.6	70kN/m2 @ 1.0m							
DP05	125	1.2		DP11	125	1.2								
DP06	125	2	70kN/m2 @ 1.0m	DP12	125	1.2								

The possibility for variation in the depth of the firm or stiff cohesive deposits in the vicinity of these foundations should be considered and foundation inspections should be carried out. Any soft spots encountered at the proposed foundation depths should be excavated and replaced with lean mix concrete.

A ground bearing floor slab is recommended to be based on the firm cohesive deposits with an appropriate depth of compacted hardcore specified by the consulting engineer and in accordance with the limits and guidelines in SR21:2014+A1:2016 and/or NRA SRW CL808 Type E granular stone fill.

The pH and sulphate testing completed on samples recovered from the trial pits indicates the pH results are near neutral and the sulphate results are low, when compared to the guideline values from BRE Special Digest 1:2005. No special precautions are required for concrete foundations to prevent sulphate attack.

#### 5.3. External Pavements

The proposed pavements are recommended to be designed in accordance with the CBR test results included in the Appendixes of this Report. The low CBR test results (< 2%) in CBR1 to CBR3 indicate that a capping layer or a sufficient depth of crushed stone fill may be required. The test in CBR4 was undertaken on granular fill present at the test location. Plate bearing tests are recommended at the time of construction to verify the design assumptions for the proposed pavement make up and to verify adequate compaction has been achieved.

The use of a geogrid and separation membrane may improve the performance of the proposed pavement and enable a more economical pavement design to be achieved, a specialist supplier is recommended to advise of the required strength, depth and type of geotextile for the proposed design.

#### 5.4. Excavations

Excavations in the Made Ground or soft Cohesive Deposits will require to be appropriately battered or the sides supported due to the low strength of these deposits. Short term temporary excavations in the firm or stiff cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25m BGL or is required to permit man entry.

Any excavations which penetrate the granular deposits will require to be appropriately battered or the sides supported and are likely to require dewatering due to the groundwater seepages noted in the exploratory hole logs in the Appendices of this Report.

The groundwater and stability noted on the trial pit logs should be consulted when determining the most appropriate construction methods for excavations. The groundwater monitoring undertake indicates the water level is between 1.0m and 2.27m BGL in the boreholes where the standpipes was installed. Generally, where significant excavations are required in water bearing granular deposits a cut-off wall may be more cost effective than extensive dewatering. The proposed basement excavation will require dewatering during construction, particularly where granular lenses are present or where the fractures in the granite bedrock are closely spaced or was recovered as non-intact. An assessment by a specialist dewatering contractor is recommended to determine the most cost effective approach to the proposed excavation.

Excavations in the upper cohesive and weathered rock deposits are expected to be excavatable with conventional excavation equipment, with zones of more intact bedrock below this depth requiring rock breaking techniques. Based on the fracture spacing, the rock strength descriptions and Pettifer & Fookes (1994) Revised Excavatability Graph, the Granite ranges from hard digging to extremely hard ripping with hydraulic breaking (D9), however the zones recovered as non-intact should be easy to hard digging with a CAT345. The JCB excavator was able to excavate to depth of 0.4m below the top of the weathered rock in TP17 only. Due to the depth at which the stratum was encountered elsewhere, the excavator was unable to progress once the granite was encountered as it became difficult to excavate within the confines of the trial pit on encountering this stratum.

Material excavated from the site, if required to be disposed of off-site should be assessed using the environmental testing completed during the ground investigation. This testing is interpreted using the criteria established by the EPA for the classification as waste and is reported under the cover of a separate Waste Classification Report and dig plan by Ground Investigations Ireland.

#### 5.5. Soakaway Design

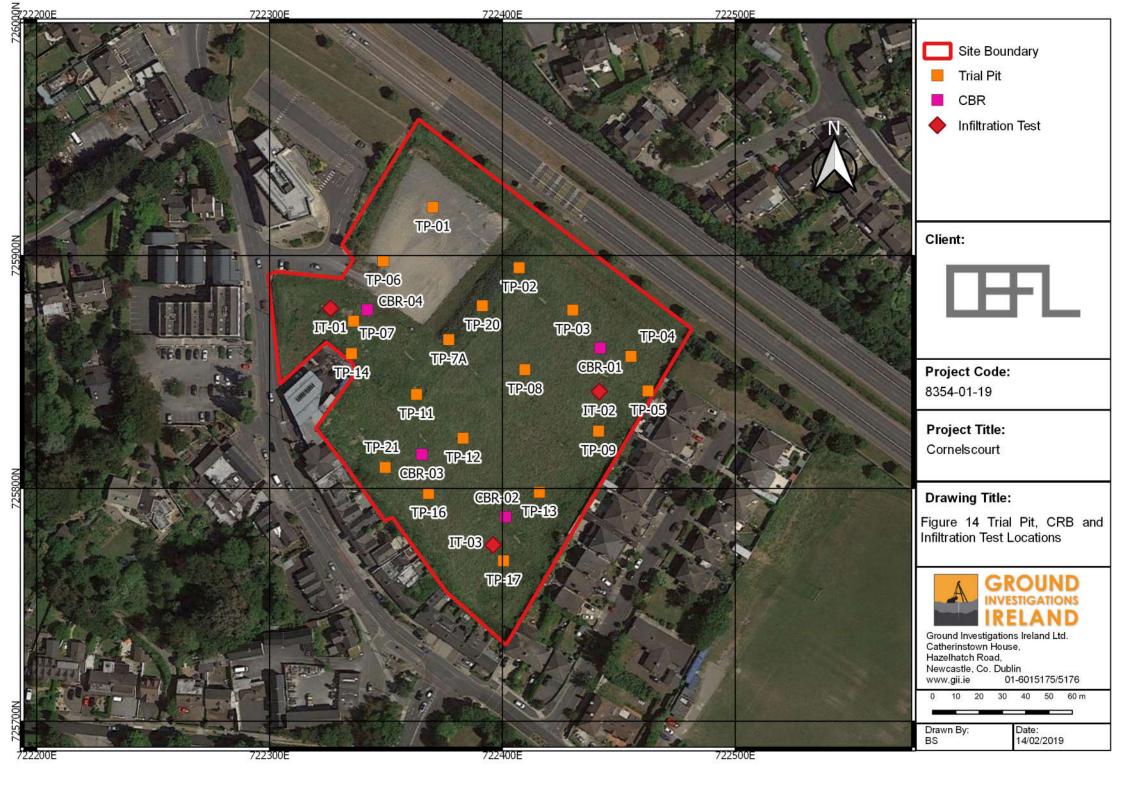
At the locations of the Infiltration tests IT01, IT02 and IT03 the water level dropped too slowly to allow calculation of 'f' the soil infiltration rate. These locations are therefore not recommended as suitable for soakaway design and construction.

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

## **APPENDIX 1** - Site Location Plan







## APPENDIX 2 - Trial Pit Records

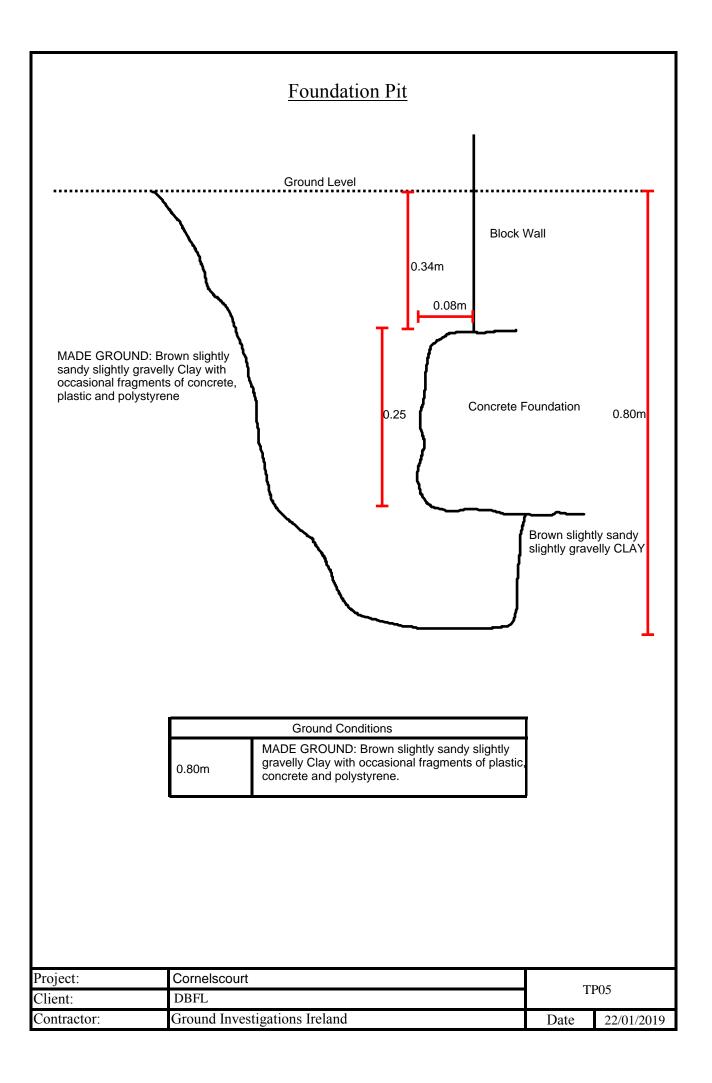
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achine : Jo ethod : Tr		Dimensio			Level (mOD) 50.29	Client	Job Numbe 8354-01-
			(Handheld GPS) 370.1 E 725920.8 N	Dates 21	/01/2019	Engineer DBFL	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
				50.09 49.94 48.59	(0.20) (0.20) (0.15) 0.35 (1.35) (1.35)	Brown slightly sandy slightly gravelly TOPSOIL with fragments of conrete and plastic.         MADE GROUND: Blueish grey slightly sandy CLAY with angular to subangular, fine to coarse gravel.         Firm, brown, slightly sandy slightly gravelly CLAY with rare subangular to subrounded cobbles of granite.         Firm, brown, slightly sandy, slightly gravelly CLAY with coccasional subangular to subrounded weathered cobbles of granite.         Firm, brown, slightly sandy, slightly gravelly CLAY with coccasional subangular to subrounded weathered cobbles of granite.	
				47.49 47.29	(0.20) 3.00 	Firm, brown, very sandy, angular to subangular, fine to coarse gravel with rare cobbles of granite and possible weathered rock. Trial pit terminated due to sidewall collapse. Complete at 3.00m	
lan .		•		• •	•••	Remarks	<i>,</i>
						Groundwater encountered at 1.40m (Slight seepage), 2.10m seepage) and 2.80m (medium seepage). Trial pit sidewall collapsed between 0.70m and 2.80m BGL. Trial pit terminated at 3.0m BGL due to sidewall collapse.	medium
		·		· ·			
•	· ·	•	· · ·				
					s		I <b>re No.</b> 4-01-19.TF

lachine : Jo	CB	Dimensio	WWW.Q	JII.IE		<b>Level (mOD)</b> 49.26	Client		Job Numbo 8354-01
		Location	407.2 E 7258	94.8 N	Dates 21	/01/2019	Engineer DBFL		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field F	Records	Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
						  (1.10)	MADE GROUND: Brown s CLAY with rare sub-angula plastic, ceramic and metal	slightly sandy slightly gravelly ar cobbles and rare fragments	of
					48.16	1.10 1.10 (0.60)	Soft to firm light brown slig occasional sub-rounded c	htly sandy gravelly CLAY with obbles.	
					47.56	- 1.70 - 1.70	Firm to stiff grey mottled b with occasional sub-round	rown slightly sandy gravelly C ed cobbles of limestone.	
						- (1.90) - (1.90) 			
					45.66 45.56		Grey sandy very clayey su with rare sub-rounded cob Trial pit terminated due t Complete at 3.70m	ib-rounded fine to coarse Gra bles. o sidewall collapse.	vel
an .	· ·					•	Remarks		
							No Groundwater encountere Trial pit stable. Infiltration test completed in Trial pit backfilled on comple	ed. trial pit. tiion of infiltration test.	
•	· ·		· ·	•	· ·	•			
						s	Scale (approx)	Logged By I	Figure No.

A		Gro	ound In	vest w	igatio ww.gii	ons Ir .ie	eland	Ltd	Site Cornelscourt		Trial Pi Numbe TP03
lachine lethod		В	Dimens				Ground	l Level (mOD) 48.52	Client		Job Numbe 8354-01-
			Locatio		725876.	.6 N	Dates 22	2/01/2019	Engineer DBFL	<b>Sheet</b> 1/1	
Depth (m)	ı	Sample / Tes	ts Water Depth (m)		Field Red	cords	Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
								(0.30)	Brown slightly sandy sligh fragments of plastic and g	tly gravelly TOPSOIL with rass rootetls.	
							48.22	2 0.30 - 0.60)	Firm light brown slightly sa	andy slightly gravelly CLAY.	
							47.62	- 0.90 - 0.90 	Firm to stiff greyish brown occaisonal sub-angular cc	slightly sandy gravelly CLAY v	vith
								(2.10)			
							45.52	2 3.00 	Terminated due to sidew Complete at 3.00m	valls collapsing.	
lan		· · ·							Remarks		
									Groundwater encountered a Trial pit sidewall collapsed b Trial pit backfilled on comple	at 2.80m BGL (Medium Seepag etween 0.90m and 2.30m. etion.	ge).
	•							· · ·			
	•		•	•	•	•	•	· · ·			
	·		•					s	Scale (approx)	Logged By F	igure No.

	Gro	una inv	estigatio www.gii	ons Irela .ie	ina L	_[0	Cornelscourt		Trial Pit Number TP04
Machine : Jo Method :	СВ	Dimensio	ons	G		<b>_evel (mOD)</b> 7.91	Client		Job Number 8354-01-1
		Location 722	455.2 E 725856.		ates 22/	01/2019	Engineer DBFL		<b>Sheet</b> 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Red	cords (i	Level mOD)	Depth (m) (Thickness)	D	escription	Legend
					-	- (0.30)	Brown slightly sandy sligh rootetls.	tly gravelly TOPSOIL with gras	s
					47.61	0.30 (0.30)	Firm light brown slightly sa	andy slightly gravelly CLAY.	
					47.31		Firm to stiff grey mottled b with rare sub-angular cobl	rown slightly sandy gravelly Cl bles and rare boulders.	<u></u>
					45.81	2.10	Stiff light orange/brown sli rare sub-rounded cobbles	ghtly sandy gravelly CLAY with	
					44.41		Obstruction: Presumed I Complete at 3.50m	Rock.	0 0 0 0 0 0 0 0 0 0 0 0 0 0
Plan .						•	Remarks No Groundwater encountere Trial pit stable. Trial pit backfilled on comple	ed.	
			· ·		·		Trial pit backfilled on comple	etion.	
			· ·		·				
			· ·	· ·		·   .			

	Grou	nd Inv	vestigations www.gii.ie	Ireland	Ltd	Site Cornelscourt	Trial Pit Number <b>TP05</b>	
Machine:Jo Method:	CB	Dimensio	ons		<b>Level (mOD)</b> 48.19	Client	Job Number 8354-01-1	
		Location 722	462.5 E 725841.8 N	Dates 2'	1/01/2019	Engineer DBFL	<b>Sheet</b> 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	
Plan				47.59		MADE GROUND: Brown slightly sandy slightly gravelly Clay with rare fragments of plastic and metal. Soft to firm brown slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles. Trial pit terminated. Complete at 2.80m		
						No Groundwater encountered. Trial pit stable. Trial pit completed adjacent to perimeter wall to inspect the wa	lls	
						foundations. Trial pit backfilled on completion.		
					s		e No. -01-19.TP0	



Grou	nd Inv	estigatior/ www.gii.ie	ns Ireland e	Ltd	Site Cornelscourt		Trial Pit Number TP06
lachine : JCB lethod :	Dimensio			Level (mOD) 51.66	Client		Job Number 8354-01-
	Location 722	348.9 E 725897.7 M		1/01/2019	Engineer DBFL		<b>Sheet</b> 1/1
Depth (m) Sample / Tests	Water Depth (m)	Field Recor	rds Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
Plan			51.46 51.36 50.56 49.16 48.76	<ul> <li>(0.10)</li> <li>(0.80)</li> <li>(0.80)</li> <li>(1.40)</li> <li>(1.40)</li> <li>(0.40)</li> <li>(0.40)</li> <li>2.90</li> <li>(0.40)</li> </ul>	Firm brown slightly sandy piece of concrete slab.	grey slightly sandy CLAY with to coarse gravel. slightly gravelly CLAY with a slightly gravelly CLAY with rare estone and granite.	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
					Groundwater encountered a Trial pit collapsed from 1.20 Trial pit terminated due to si	t 0.70m (Slight seepage). m to 2.40m BGL. dewall collapse.	
	•	· ·					
					icale (approx)	Logged By F	igure No.

	Grou	ind In		gatic vw.gii.	ons Ire <sup>ie</sup>	land	Ltd	Site Cornelscourt		Trial Pit Number <b>TP07</b>
Machine : Jo Method :	CB	Dimens	ions				Level (mOD) 52.62	Client		Job Number 8354-01-1
		Locatio	<b>n</b> 2336.1 E	725871.9	9 N	Dates 21	/01/2019	Engineer DBFL		
Depth (m)	Sample / Tests	Water Depth (m)	F	Field Rec	ords	Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
						52.42	(0.20) 0.20 (0.55) (0.55)	rootlets.	tly gravelly TOPSOIL with gras sandy slightly gravelly CLAY w and gravelly lenses.	
						51.87	0.75 (0.35)	Firm greyish brown slight sub-rounded cobbles.	y sandy gravelly CLAY with rar	6 0 0 0 0
						51.52	- 1.10 	Firm to stiff greyish brown rare sub-rounded cobbles	slightly sandy gravelly CLAY v	/ith 6 - 0 - 0
			Medium 2.40m.	Seepage	ə(1) at	50.62	- (0.90) - 2.00 - 2.00 	Stiff greyish brown slightly sub-rounded cobbles.	sandy gravelly CLAY with rare	
						49.42 49.22	(0.20)	Stiff light brown slightly sa occasional sub-angular co Obstruction: Boulder or Complete at 3.40m		20 20 20 20 20 20 20 20 20 20 20 20 20 2
Plan .		•	•	•		•	•	Remarks		
								Groundwater encountered a Trial pit sidewall collapsed fi Trial pit backfilled on comple	at 2.40m BGL - Medium Seepa rom 1.10m BGL to 2.60m. stion.	je.
· ·	· ·					· ·				
						· ·		Scale (approx) 1:25		<b>igure No.</b> 354-01-19.TP07

	GIO	ind In		ations v.gii.ie	Irelanc	l Lto	t	Site Cornelscourt		Trial Pit Numbe TP07
Machine:JC Method:	CB	Dimensi	ons		Grour	nd Leve 51.2	el (mOD) 7	Client		Job Numbe 8354-01-
		Location 722	<b>n</b> 2376.9 E 72	25863.9 N	Dates	21/01/2	2019	Engineer DBFL		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Fie	ld Records	Leve (mOE	l [ )) (Thi	Depth (m) ickness)	D	escription	Legend
							(0.60)	MADE GROUND: Brown s Clay with rare fragments o	slightly sandy slightly gravelly of plastic and metal.	
					50.1		0.60	Firm light brown slightly sa rare sub-angular cobbles.	andy slightly gravelly CLAY with	0.00 0.00
					50.		1.25 (0.25)	Soft to firm greyish brown CLAY with rare sub-angula	slightly sandy slightly gravelly ar to sub-rounded cobbles.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
					49.		1.50	Firm to stiff grey mottled b with rare sub-rounded cob	rown slightly sandy gravelly Cl bles.	AY 200 00 00 00 00 00 00 00 00 00 00 00 00
					49.		2.20	Stiff grey mottled brown sl occasional boulders.	ightly sandy gravelly CLAY witl	
					48.	47	2.80	Obstruction: Boulder or Complete at 3.30m	rock.	
Plan .		•	·				•	Remarks Trial pit stable. No Groundwater encounter	ed	
·			•				•	No Groundwater encountere Trial pit backfilled on comple	etion.	
			•				•			
	• •	•	•		·	•	•			
						•	•			

	Grou	nd Inv	estigations www.gii.ie	Ireland	Ltd	Site Cornelscourt	Trial Pit Number TP08	
Machine : JCB Method :		Dimensio	ons	Ground	l <b>Level (mOD)</b> 49.97	Client	Job Number 8354-01-19	
		Location 7224	409.6 E 725851 N	Dates 2	2/01/2019	Engineer DBFL	Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	
				49.57		Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
				49.17		Firm to stiff greyish brown slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and sandy gravel lenses.	က်နီ အုံးစ်စွာ အုံးစ်စွာ အုံးစ်စွာ အုံးစ်စွာ အုန်စာ မြောင်းရာအုပ်ရာအုပ်ရာ အုံးစ်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ အုန်စွာ	
				47.07	2.90	Trial pit terminated due to sidewall collapse. Complete at 2.90m		
Plan						Remarks Groundwater encountered at 2.00m (slight seepage) and 2.3	0m BGL(fast	
						seepage). Trial pit sidewalls collapsed. Trial pit backfilled on completion.		
	· ·	•	· · · ·		· · ·			
					<u></u>	icale (approx) Logged By Fig	ure No.	

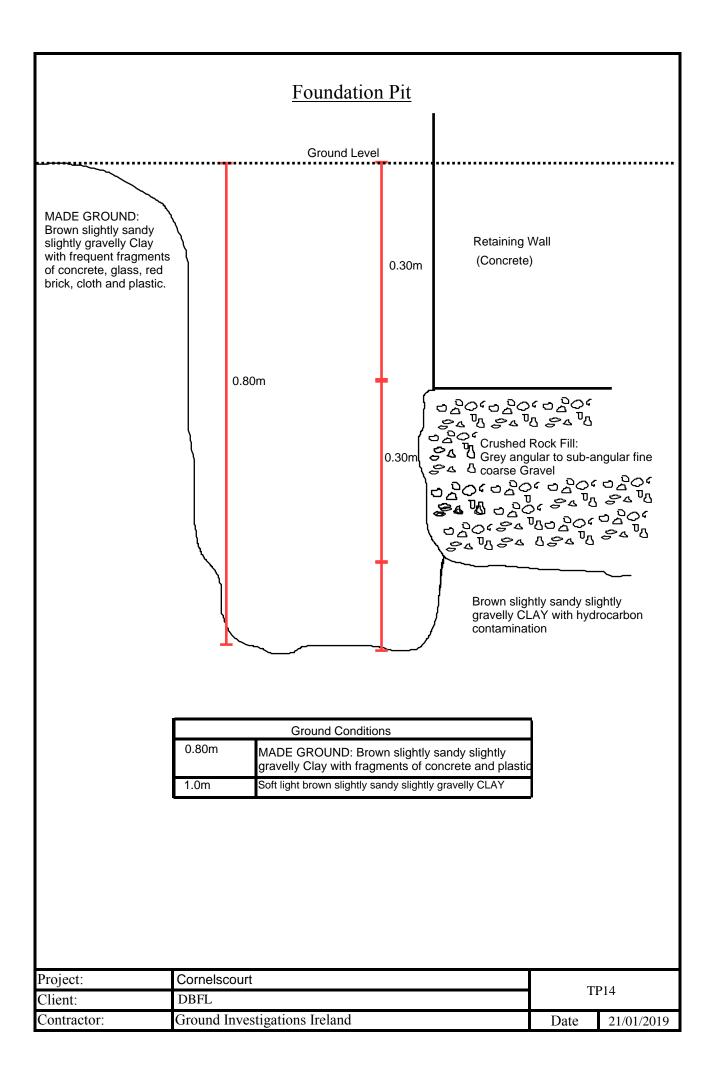
Machine : JCB			P' ····································		w.gii.		<b>C</b>	Laurel ( ) OF:	Cornelscourt		
Method :		Dimensi	Dimensions				Level (mOD) 49.07	Client		Job Numb 8354-01	
			Location 722	n 2441.3 E 7	725824.6	δN	Dates 22	2/01/2019	Engineer DBFL		Sheet
Depth (m)		Sample / Tests	Water Depth (m)	Fi	eld Rec	ords	Level (mOD)	Depth (m) (Thickness)	D	Description	Legend
								(0.40)		slightly sandy slightly gravelly ments of concrete and plastic.	
							48.67	0.40	Soft to firm light brown slig	ghtly sandy slightly gravelly CL	AY.
							48.27	0.80	Firm greyish brown slightly sub-angular cobbles.	y sandy gravelly CLAY with rar	e <u>6 0 0 0</u>
								(0.70)			
							47.57	1.50 (0.50)	Firm to stiff greyish brown rare sub-rounded boulder:	slightly sandy gravelly CLAY v s of limestone.	vith
							47.07	2.00	Stiff greyish brown slightly sub-angular cobbles.	v sandy gravelly CLAY with rare	
								- - - - - - - - - - - - - - - - - - -			
							45.57	3.50	Obstruction: Presumed I Complete at 3.50m	Rock.	6.0 <u>0</u> 6.0 <u>0</u> 0.0 <u>0</u>
an	•		•	•	•	•		••••	Remarks	at 2.60m BCI	
									Trial pit sidewalls collapsed Trial pit backfilled on comple	between 1.0m and 1.80m BGL etion.	
	•			•	•	•					
								⊢		1	

Ground Investigations Ire						_td	Site Cornelscourt	Trial Pit Number TP11
Machine : JCB Method :		Dimensions				<b>_evel (mOD)</b> 52.02	Client	Job Numbe 8354-01-
		Location 7223	363.1 E 725840.4 N	Dat	<b>tes</b> 21/	01/2019	Engineer DBFL	<b>Sheet</b> 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Recor	ds (m	evel IOD)	Depth (m) (Thickness)	Description	Legend
Plan				5	51.22 51.02 50.02 49.02	(0.80) (0.80) (0.20) (0.20) (1.00)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with frequent fragments of concrete, glass, red brick cloth and plastic. Soft light brown slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles. Firm grey slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and a strong hydrocarbon odour.	(*) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
		·					Trial pit stable. No Groundwater encountered. Trial pit sidewall collapsed between 0.80m and 2.25m BGL	
•		·			•	•	Trial pit backfilled on completion.	
·		·			•	·		
	· · ·		· ·					
			· .					<b>gure No.</b> 354-01-19.TF

A			vestigations www.gii.ie	1		Cornelscourt	Numbe
Machine : JCB Method :		Dimensio	ons		Level (mOD) 51.55	Client	Job Numbe 8354-01-
		Location 7223	383.1 E 725821.6 N	Dates 22	2/01/2019	Engineer DBFL	Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
				51.35 51.05 50.85	(0.30) 0.50 (0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets. Firm light brown slightly sandy slightly gravelly CLAY. Firm greu mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles. Firm to stiff gey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.	္ကာရဲ႕လူတြင္းလူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လူတရဲ႕လ အဖြဲ့အျဖဴးရာအျဖဴးရာအျဖဴးတြင္အျဖဴးတြင္အအျဖဴးရြာအျဖဴးရာအျဖဴးရားေႏြးႏိုင္ငံ ဒြပေရာက္စရာစြဲရာကြဲရာတြင္ စုိင္ရာစုိင္ရာကို အျဖဴးရာစရဲ႕စုိရာစုိင္ရာစြဲတြင္ စုိင္ရာစုိင္ရာ စုိင္ရာစုိရာကို စုိေ
				48.65		Obstruction: Granite Boulder. Complete at 2.90m	
an .					• •	Remarks	
						Groundwater encountered at 2.50m (Medium seepage). Trial pit sidewalls collapsed from 0.90m to 2.60m Trial pit backfilled on completion.	
						Scale (approx) Logged By Fig	ure No.

A	Gro	und In	vestigat www.g	Site Cornelscourt		Trial Pit Number TP13			
Machine : JCB Method :		Dimensi	ons			Level (mOD) 50.79	Client		Job Number 8354-01-1
		Location 722	n 2415.9 E 7257	98.4 N	Dates 22	2/01/2019	Engineer DBFL		<b>Sheet</b> 1/1
Depth (m)	Sample / Test	s Water Depth (m)	Field I	Records	Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
					50.39	(0.40) - 0.40	grass rootlets.	slightly sandy slightly gravelly of metal, plastic, concrete an ghtly sandy slightly gravelly C	
					49.89	(0.50) - (0.90			
					49.09	(1.10)	Firm to stiff greyish brown rare sub-angular to sub-ro	slightly sandy gravelly CLAY unded cobbles.	with 6 12 0 6 2 1 2 0 7 2 1 2 0 0 7 2 1 0 0 0 7 2 1 0 0 0 7 2 1 0 0 0 0 7 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
					48.79	2.00	Stiff grey mottled brown sl rare sub-angular cobbles.	ightly sandy gravelly CLAY wi	0.400000000000000000000000000000000000
					47.59	3.20	Complete at 3.20m		
Plan .	· ·				•	• •	Remarks		
							No Groundwater encountere Trial pit stable. Trial pit backfilled on comple	eu. etion.	
•									
		•	• •	•	-	· ·			

	Grou	nd Inv	vestig www	ations ⁄.gii.ie	Site Cornelscourt		Trial Pit Number TP-14			
Machine : JCB Method :		Dimensi	ons		Ground	<b>Level (mOD)</b> 53.39	Client		Job Number 8354-01-1	
		Location 722	n 2335.2 E 72	25857.9 N	Dates 2	1/01/2019	Engineer DBFL		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Water Depth (m)	Fiel	ld Records	Level (mOD)	Depth (m) (Thickness)	C	Description	Legend
						(0.80)	MADE GROUND: Brown Clay with frequent fragme cloth and plastic.	slightly sandy slightly gravell nts of concrete, glass, red b	y rick,	
					52.59	(0.20)		andy slightly gravelly CLAY w bunded cobbles. lightly gravelly CLAY with rar a strong hydrocarbon odour.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
					51.39	(1.00)			0 0 0 0 0 0 0 0 0 0 0 0 0 0	
							Firm to stiff grey slightly s rare sub-angular cobbles	andy slightly gravelly CLAY v and a hydrocarbon odour.	vith	
					50.09	- 3.30 - 3.30 	Obstruction: Boulders of Complete at 3.30m	r rock.	<u>, , , , , , , , , , , , , , , , , , , </u>	
Plan .							<b>Remarks</b> Trial pit stable.			
							No Groundwater encounter Trial pit backfilled on comple	ed. etion.		
·					·	•••				
		•	•	• •	•	• •				



A	Gro	und In		ations Iı .gii.ie	reland	Ltd	Site Cornelscourt		
Machine : JCB Method :		Dimensi				Level (mOD) 52.54	Client		Job Numbe 8354-01
		Location 722	n 2368.3 E 725	5797.8 N	Dates 22	2/01/2019	Engineer DBFL		Sheet 1/1
Depth (m)	Sample / Test	s Water Depth (m)	Field	d Records	Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
					52.29	(0.25) 0.25	rootlets.	ly gravelly TOPSOIL with grass	
						(0.55)			
					51.74	0.80 	Firm greyish brown slightly sub-angular cobbles.	r sandy gravelly CLAY with rare	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
					51.24	- 1.30 - 1.30	Firm to stiff greyish brown rare sub-angular cobbles a	slightly sandy gravelly CLAY w and sandy gravel lenses.	ith 6 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -
						(1.40)			2000 200 2000 2
					49.84	2.70	Obstruction: Presumed F Complete at 2.70m	Rock(granite).	
an .							Remarks Groundwater encountered a Trial pit stable. Trial pit backfilled on comple	t 2.60m BGL (Medium seepage	e).
·			•				Trial pit backfilled on comple	tion.	
•			•			· · ·			
-	•								
						1			
					· ·	s	cale (approx)	Logged By Fi	gure No.

Ground Investigations Ireland Ltd www.gii.ie									Site Cornelscourt		Trial Pir Numbe TP17
Machine : JCB Method :			Dimens	Dimensions				Level (mOD) 51.60	Client Engineer DBFL	Job Numbe 8354-01-	
				Location 722400.4 E 725768.9 N			Dates 22	2/01/2019		<b>Sheet</b> 1/1	
Depth (m)	1	Sample / Test	s Water Depth (m)	F	Field Rec	ords	Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
							51.35	(0.25) 0.25 (0.65)	rootlets.	tly gravelly TOPSOIL with gras	S
							50.70		Firm to stiff greyish brown rare sub-rounded cobbles	slightly sandy gravelly CLAY v limestone.	ith 6 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -
								- (1.90) - (1.90) 			2.000 00 00 00 00 00 00 00 00 00 00 00 00
							48.80 48.40	(0.40)	Light yellowish grey very s to sub-rounded fine to coa granite(Weathered Rock). Obstruction: Rock (Gran Complete at 3.20m	andy slightly clayey sub-angul rse GRAVEL of ite).	ar
Plan									Remarks		
									Groundwater encountered a Trial pit sidewalls spalling. Trial pit backfilled on comple	t 3.10m BGL (Medium seepag stion.	e).
	•										
	•										
	·					•		· · ·   · · ·	cale (approx)		
									cale (approx)	Logged By F	igure No.

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Machine : JCB			WWW.gii.ie				Level (mOD)	) Client	Job Numbe	
lethod :						50.27	8354-01			
			Location 722391.4 E 725878.4 N			Dates 21	/01/2019	Engineer DBFL	Sheet 1/1	
Depth (m)	1	Sample / Tests	Water Depth (m)	Field	d Records	Level (mOD)	Depth (m) (Thickness)	D	escription	Legend
							  (0.50)	MADE GROUND: Brown s Clay with rare fragments o	slightly sandy slightly gravelly f plastic, wire, cloth and glass	
						49.77	0.50 (0.20)	Firm light brown slightly sa	andy slightly gravelly CLAY.	·········
						49.57	0.70	Stiff grey mottled brown sl rare sub-angular cobbles.	ightly sandy gravelly CLAY wit	h 9000
							(0.80) 			6.0.0 6.0.0 6.0.0 6.0.0 6.0.0 6.0 6.0 7 6.0 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
						48.77	- 1.50 	Firm greyish brown slightly sub-angular cobbles.	y sandy gravelly CLAY with rai	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
							(1.00)			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
						47.77	2.50 	Stiff to very stiff black sligh cobbles and boulders.	tly sandy gravelly CLAY with r	are
						47.27	3.00 	Obstruction: Boulder or n Complete at 3.00m	ock.	
lan	•		•	•			•	Remarks Groundwater encountered a	t 2.0m BGL(Medium seepage	).
			·	•				Trial pit sidewalls spalling. Trial pit backfilled on comple	etion.	
	•									
		· ·			 					
							s	Scale (approx)	Logged By F	igure No.

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A			vestigations www.gii.ie	Cornelscourt			
Machine : JCB Method :		Dimensio	ons	Ground	53.18	Client Engineer DBFL	Job Number 8354-01- Sheet 1/1
		Location 7223	349.6 E 725808.9 N	Dates 22	2/01/2019		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
					(0.25)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.	
				52.93	0.25	Firm light brown slightly sandy slightly gravelly CLAY.	
					(0.35)		
				52.58	0.60	Firm greyish brown slightly sandy gravelly CLAY with rare sub-angular cobbles and lenses of granite.	0 <u>+0+</u> 0+
					(0.35)	sub-angular cobbles and lenses of granite.	<u>0,00</u> ,0
				52.23	- - 0.95	Grev very sand slightly clavey subrounded to rounded fine	<u>6 0 0</u>
					(0.25)	Grey very sand slightly clayey subrounded to rounded fine to coarse GRAVEL with rare sub-rounded cobbles.	
				51.98	3 — 1.20	Firm to stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.	<u>6 0 0 0</u>
					-		0 <u>.0</u> 0
							<u>, 0 0 0</u>
					<u> </u>		<u>6.04</u>
					-		
					(1.80)		<u>6.0.0</u>
					<u>–</u>		<u>6.00</u>
							0 <u>.0</u> 0
					-		0 <u>,0</u> ,0 0,0,0
					-		<u>6.04</u>
				E0 19	3 3.00	_	<u>6 . 0 4</u> . 0 <u>. 0</u> 0
				50.18		Obstruction: Rock (Granite).	
					-		
					-		
					- -		
an .	· · ·	•		•	'	Remarks	
						No Groundwater encountered. Trial pit stable. Trial pit backfilled on completion.	
•		·		·	•••	Strong hydrocarbon odour upon reaching rock.	
-							
	•	-	- •	-			
		•			•••		
					-		
					S	Scale (approx) Logged By Figu	re No.

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## Cornelscourt – Trial Pit Photographs





























TP07



TP07A















TP11





























TP21



# **APPENDIX 3** – Soakaway Records

IRELAND	Grou	ind In	vestigations www.gii.ie	s Ireland	Ltd	Site Cornelscourt	Trial Pit Number IT01
<b>lachine</b> : J lethod :	СВ	Dimensi	ons		Level (mOD) 53.25	Client	Job Number 8354-01-1
		Location 722	n 2326.2 E 725877.3 N	Dates 21	1/01/2019	Engineer DBFL	Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	s Level (mOD)	Depth (m) (Thickness)	Description	Legend
Plan				53.05	(0.20) 0.20 (0.30) (0.30) (1.40) 1.90	Brown slightly sandy slightly gravelly TOPSOIL. MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Firm brown slightly sandy slightly gravelly CLAY. Complete at 1.90m Remarks	
						No Groundwater encountered. Trial pit stable. Infiltration test completed in trial pit. Trial pit backfilled on completion of infiltration test.	
·		·		·		Trial pit backfilled on completion of infiltration test.	
				•	•••		
					•••		
					•••		
•		•		•	 s	tcale (approx) Logged By	Figure No. 8354-01-19.IT(

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Machine : JCB		nd Inv	vestigations www.gii.ie	reland	Ltd	Site Cornelscourt	Trial Pit Number IT02
Machine:JC Method:	B	Dimensi	ons		Level (mOD) 48.87	Client	Job Number 8354-01-1
		Location 722	n 2441.6 E 725841.6 N	Dates 21	1/01/2019	Engineer DBFL	<b>Sheet</b> 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
Plan . 		(m) (m)		48.57 48.57 47.47 46.97	(0.30) (0.30) (1.10) (1.10) (0.50)	Brown slightly sandy slightly gravelly TOPSOIL. Firm to stiff light brown slightly sandy slightly gravelly CLAY Stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles. Complete at 1.90m Remarks No Groundwater encountered. Trial pit stable. Infiltration test completed in trial pit. Trial pit backfilled on completion of infiltration test.	
•							
					s		<b>ire No.</b> i4-01-19.IT0

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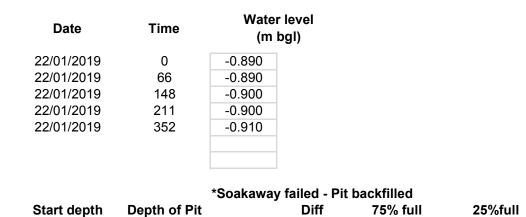
	Grou	nd Inv	vestiga www.	tions Ir <sub>gii.ie</sub>	eland	Ltd	Site Cornelscourt	Trial Pit Number IT03
Machine:JO Method:	CB	Dimensi	ons		Ground	Level (mOD)	Client	Job Number 8354-01-1
		Location	1		Dates 21	1/01/2019	Engineer DBFL	<b>Sheet</b> 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field	Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
Plan .						•••	Brown slightly sandy slightly gravelly TOPSOIL. Firm to stiff light brown slightly sandy slightly gravelly CLAY with rare sub-angular cobbles. Firm to stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles. Firm to stiff grey mottled brown slightly sandy gravelly C with rare sub-angular cobbles. Complete at 1.90m Remarks No Groundwater encountered. Trial pit stable. Infiltration test completed in trial pit. Trial pit backfilled on completion of infiltration test.	
 	· ·					· · ·		
						s		i <b>gure No.</b> 3354-01-19.IT03

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0.89

#### IT01 Soakaway Test to BRE Digest 365 Trial Pit Dimensions: 1.50m x 0.40m 1.90m (L x W x D)

1.900



1.010

1.1425

1.6475

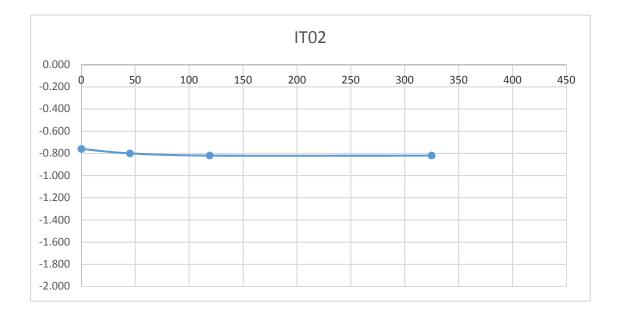
				IT01					
0.000									
-0.200	50	100	150	200	250	300	350	400	45
-0.400									
-0.600									
-0.800									
-1.000									
-1.200									
1.400									
1.600									
1.800									



### IT02 Soakaway Test to BRE Digest 365 Trial Pit Dimensions: 1.90m x 0.40m 1.90m (L x W x D)

Date	Time	Water level (m bgl)
22/01/2019	0	-0.760
22/01/2019	45	-0.800
22/01/2019	119	-0.820
22/01/2019	325	-0.820

*Soakaway failed - Pit backfilled											
Start depth	Depth of Pit	Diff	75% full	25%full							
0.76	1.900	1.140	1.045	1.615							

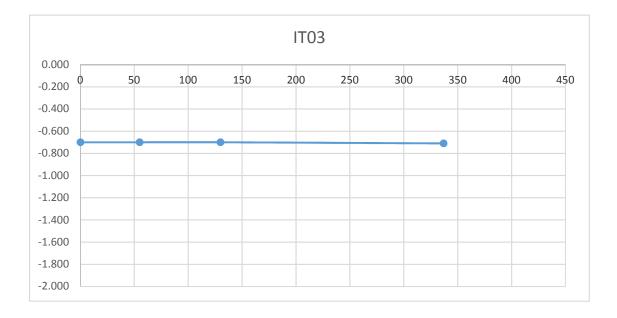




### IT03 Soakaway Test to BRE Digest 365 Trial Pit Dimensions: 1.5m x 0.50m 2.0m (L x W x D)

Date	Time	Water level (m bgl)
14/09/2016	0	-0.700
14/09/2016	55	-0.700
14/09/2016	130	-0.700
14/09/2016	337	-0.710

*Soakaway failed - Pit backfilled											
Start depth	Depth of Pit	Diff	75% full	25%full							
0.70	1.900	1.200	1	1.6							





## **APPENDIX 4** – Dynamic Probe Records

	Ground Investigations Ireland Ltd						Site								Probe Number	
Parameter Burger 1000000000000000000000000000000000000	A					Corne	lscourt								DPH01	
LacionDistantDistantPaginerSecondSecondAreaPaginerSecondSec	héight 500r			Ground	Level (mOD)										Num	
Concertain         Field Records         Loss of the second	JUNG.		Location	Dates		Engine	er									
UND       UPpendications       Unit U       Unit U       U       3       8       9       12       15       16       21       24       27       30         000-010       0 </th <th></th> <th></th> <th></th> <th>01/0</th> <th>02/2019</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>1/</th> <th>'1</th>				01/0	02/2019										1/	'1
000000000000000000000000000000000000	Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)	0	3	6						24 3	07	30
2020301       3       - </td <td>0.00-0.10</td> <td>0</td> <td></td> <td></td> <td>0.00</td> <td></td> <td></td> <td>-</td> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>+</td>	0.00-0.10	0			0.00			-	5							+
3       0.300.070       3       0.500.070       3         0.10.000       3       0.500.070       3       0.500.070       3         0.10.000       4       0.500.070       3       0.500.070       3         0.10.100       4       0.500.070       10.000.070       10.000.070       0.000.070       10.000.070       0.000.070       0.000.070       10.000.070       0.000.070 <td>0.10-0.20</td> <td></td> <td></td> <td></td> <td>-</td> <td></td>	0.10-0.20				-											
500.00       3       0.50       0	0.20-0.30 0.30-0.40	3			-											
0.703.080       2         0.803.090       4         0.803.090       4         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-120       6         1.10-130       15         1.00-160       15         1.00-160       15         1.00-170       1         1.00-170       1         1.00-100       2002.00         2.00-200       0         2.00-200       0         2.00-200       0         2.00-200       0         2.00-200       0         2.00-200       0         2.00-200       0         2.00-200       0         2.00-200       0         2.00-200       0         3.00-200       0         3.00-200       0         3.00-200       0         3.00-200 <td< td=""><td>0.40-0.50 0.50-0.60</td><td>3 3</td><td></td><td></td><td>0.50</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>T</td></td<>	0.40-0.50 0.50-0.60	3 3			0.50											T
0.80.0 00       4	0.60-0.70	3			- 											+
1.0.1-10       6       1.0.0       1.0.0       1.0.1         1.30-1.40       1.3       1.5       1.50       1.50       1.50         1.30-1.40       1.5       1.50       1.50       1.50       1.50       1.50         1.50-1.70       1.5       1.50       1.5	0.70-0.80 0.80-0.90				-											+
1101-120       6       1<	0.90-1.00				 1.00											
140-150       38       150 <t< td=""><td>1.10-1.20</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	1.10-1.20				-			-								
140-150       38       150 <t< td=""><td>1.20-1.30 1.30-1.40</td><td>17 15</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>T</td></t<>	1.20-1.30 1.30-1.40	17 15			-											T
1.00-1.70       11         1.70-1.80       13         1.80-1.90       7         1.80-1.90       7         1.80-1.90       9         2.00-2.00       8         2.10-2.20       8         2.10-2.20       8         2.10-2.20       10         2.10-2.20       10         2.20-2.30       9         2.20-2.30       9         2.20-2.30       11         2.20-2.30       11         2.20-2.30       11         2.20-2.30       11         2.20-2.30       11         2.20-2.30       13         2.20-2.30       13         2.20-2.30       13         3.00-30       12         3.00-30       12         3.00-30       12         3.00-30       14         3.00-30       16         3.00-30       16         3.00-30       16         3.00-30       16         3.00-30       16         3.00-30       16         3.00-400       16         3.00-400       16         3.00-400       16	1.40-1.50	38			 											38
1.80-100       7       -<	1.60-1.70														<u> </u>	+
190200       9       1       200       1<	1.70-1.80 1.80-1.90	13 7														+
210-220       8         220-230       9         230-240       9         240-250       9         240-250       9         240-250       11         240-270       10         270-280       13         280-300       11         280-300       12         380-300       12         380-300       16         370-380       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         380-300       16         4.00       10         4.00       10      <	1.90-2.00															
2.302.40 9 2.502.60 11 2.602.70 10 2.702.80 13 2.802.90 11 2.802.90 11 2.802.90 11 2.803.00 12 3.003.00 16 3.003.00 16 3.003.00 16 3.003.00 16 3.003.00 16 3.003.00 16 3.003.00 16 3.003.00 16 3.003.00 16 3.004.00 36 4.00 5.00	2.10-2.10															
240.250       9       1       2.50       1	2.20-2.30	8														+
2.80.2.70       10	2.40-2.50	9														+
230-230       11       1<	2.50-2.60				2.50 											+
290-3.00       12         3.00-3.00       13         3.00-3.00       12         3.00-3.00       12         3.00-3.00       16         3.00-1.00       10         4.00       10         10       10         10       10         10       10	2.70-2.80	13			-											
3.10-3.20       13         3.20-3.30       12         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-3.00       16         3.00-4.00       36         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         4.00       4.00         5.00       10       10	2.90-3.00	12			-											
3.20-3.30       12         3.40-3.50       14         3.40-3.50       14         3.60-3.60       16         3.60-3.70       16         3.80-3.80       16         3.80-3.90       16         3.80-3.90       16         3.80-3.90       16         3.80-3.90       16         3.80-3.90       16         3.80-3.90       16         3.80-3.90       16         3.80-3.90       16         3.80-3.90       16         3.90-4.00       36         -4.00       -4.00         -4.50       -4.50         -4.50       -4.50         -4.50       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50         -5.00       -4.50      <					3.00 											$\top$
3.40-3.50       14       16       3.50       16       3.50       16       1	3.20-3.30	12			-											+
3.50-3.60       16         3.60-3.70       16         3.70-3.80       16         3.80-3.90       16         3.80-3.90       16         3.90-4.00       36         -       4.00         -       4.50         -       -         -       -         -       4.50         -       -	3.40-3.50	14			-											+
3.70-3.80       16         3.80-3.90       16         3.90-4.00       36         -       4.00         -       -         -       -         -       -         -       -         -       -         -       -         -       -         -       -         - <td></td> <td></td> <td></td> <td></td> <td> 3.50 </td> <td></td> <td>_</td>					3.50 											_
3.90-4.00 36 4.00 4.00 4.00 5.00 36 36 4.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00		16			-  -											
Remarks       Scale (approx)       Scale (approx)       Scale (approx)       Logged         1:25       4.00       1.25       4.00					 - 											36
Remarks Refusal at 4.00m BGL 25 blows for 10mm       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.					4.00											
Remarks Refusal at 4.00m BGL 25 blows for 10mm       Scale L       Scale L       Scale L       Logged Figure No.					-											+
Remarks Refusal at 4.00m BGL 25 blows for 10mm       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.																_
Remarks Refusal at 4.00m BGL 25 blows for 10mm       Scale (approx)       Logged by         1:25       4.00         Figure No.					4.50											
Remarks Refusal at 4.00m BGL 25 blows for 10mm       Scale (approx)       Logged by         1:25       4.00         Figure No.					-											
Remarks Refusal at 4.00m BGL 25 blows for 10mm       Scale (approx)       Logged by         1:25       4.00         Figure No.					 											+
1:25 4.00 Figure No.					5.00								<u> </u>		<u> </u>	_
Figure No.	Remarks Refusal a	t 4.00m BGL 25 blo	ws for 10mm										(	Scale approx)	Logg By	jed
														1:25	4.(	00
														-		

Ground Investigations Ireland Ltd						Site								Probe Number	
A		www.gii.ie	orarra		Corne	elscourt								DPH	102
Method Dynamic Pr height 500r 50Kg.	obe DPH, Fall nm, hammer wt	Cone Dimensions 43.7mm	Ground	Level (mOD)	Client DBFL									Job Num 8354-0	
oortg.		Location	Dates	02/2019	Engine	er								Shee 1/	
Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)	_			Blows							
0.00-0.10	1			0.00	0	3	6	9 ′	12 -	15	18 2	21	24 2	27	30
0.10-0.20	2														
0.20-0.30 0.30-0.40	2 3			-											
0.40-0.50 0.50-0.60	23			 0.50											+
0.60-0.70	4													<u> </u>	+
0.70-0.80 0.80-0.90	34														
0.90-1.00 1.00-1.10	8 7			 1.00											
1.10-1.20	5														
1.20-1.30 1.30-1.40	75			 - 											+
1.40-1.50 1.50-1.60	7			 											+
1.60-1.70	6													<u> </u>	+
1.70-1.80 1.80-1.90	21 18														
1.90-2.00	13														
2.00-2.10 2.10-2.20	15 14			2.00 											<u> </u>
2.20-2.30 2.30-2.40	15 14														+
2.40-2.50	12			-										<u> </u>	+
2.50-2.60 2.60-2.70	11 24			2.50 					-						+-
				3.00 											+
				-											+
				-											+
				3.50 											
				-											
				 											+
				4.00 											+
				-											+
				4.50 											
				-											
															+
Der i				5.00								<u> </u>			<u> </u>
Remarks Refusal a	t 2.70m BGL 25 blo	ws for 50mm											Scale (approx)	Logg By	jed
													1:25	4.0	00
													Figure		

Ground Investigations Ireland Ltd						Site Cornelscourt							Probe Numbe	
Method Dynamic P	robe DPH, Fall	WWW.gii.ie Cone Dimensions 43.7mm	Ground	Level (mOD)									Job Numb	ber
50Kg.	mm, hammer wt	Location	Dates		Engine	er							Sheet	
				02/2019									1/1	
Depth (m)	Blows for Depth Incremen	Field Records	Level (mOD)	Depth (m)	_			s for De						
0.00-0.10	0			0.00	0	36	3 9	12	15 1	8 2	1 24	2	7 3	30 
0.10-0.20	2													
0.20-0.30 0.30-0.40	3 2			- 										
0.40-0.50 0.50-0.60	23			0.50										
0.60-0.70	2			-										-
0.70-0.80 0.80-0.90	3 2			-										<u> </u>
0.90-1.00 1.00-1.10	4 4			 1.00										
1.10-1.20	3			-										
1.20-1.30 1.30-1.40	3 2													
1.40-1.50 1.50-1.60	33			 1.50										$\vdash$
1.60-1.70	4													-
1.70-1.80 1.80-1.90	5 4			-				_						<u> </u>
1.90-2.00 2.00-2.10	3 4			2.00										
2.10-2.20	8													
2.20-2.30 2.30-2.40	11 11													$\square$
2.00 2.10														-
				2.50				_						<u> </u>
				-										
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Remarks				5.00							Sc	ale		
Refusal a	t 2.50m BGL for 25	blows									(ap	prox)	Logge By	
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Ground Investigations Ireland Ltd					Site Cornelscourt								Probe Number DPH04	
Method Dynamic P height 500r	robe DPH, Fall mm, hammer wt	Cone Dimensions 43.7mm	Ground I	_evel (mOD)	Client DBFL								Job Numb	oer
50Kg.		Location	<b>Dates</b> 01/0	02/2019	Engine	er							Sheet 1/ <sup>-</sup>	
Depth (m)	Blows for Depth Incremen	t Field Records	Level (mOD)	Depth (m)	0	3 6		s for De				24 2	27	30
0.00-0.10	0			0.00										F
0.20-0.30 0.30-0.40	32			-										$\vdash$
0.40-0.50	3			-  										+
0.60-0.70	3			0.50										+
0.70-0.80 0.80-0.90	23			-										-
0.90-1.00 1.00-1.10	3 4		-	 1.00										
1.10-1.20	6			- 										
1.20-1.30 1.30-1.40	15 8													
1.40-1.50 1.50-1.60	4 4			  1.50										$\vdash$
1.60-1.70	4			-										$\vdash$
1.70-1.80 1.80-1.90	5 5			-										+
1.90-2.00 2.00-2.10	6 8			2.00			_							<u> </u>
2.10-2.20	10			- 										
2.20-2.30 2.30-2.40	11 13			-										
2.40-2.50 2.50-2.60	13 5			2.50										F
2.60-2.70	17			-										$\vdash$
2.70-2.80 2.80-2.90	21 24			-  -										+
2.90-3.00	26			3.00										<u> </u>
				-										
				-										
				3.50										
				-										+
				-										$\vdash$
				4.00										+
				-										<u> </u>
				-										
			-	4.50										
														<b>—</b>
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Remarks				5.00								Scale	Logg	ed.
											C	Scale approx)	By	
												1:25 Figure	4.0	0
												i igure l	10.	

	Gro	und Investigations	Ireland	Ltd	Site Corne	lscourt					Probe Numb	
Method Dynamic P height 500r	robe DPH, Fall nm, hammer wt	WWW.gii.ie Cone Dimensions 43.7mm	Ground I	Level (mOD)	Client DBFL				 		Job Numb 8354-0	ber
50Kg.		Location	<b>Dates</b> 01/0	)2/2019	Engine	er			 		Shee 1/	t
Depth (m)	Blows for Depth Incremen	Field Records	Level (mOD)	Depth (m)	0	3 6	<b>ws for D</b> 12	epth Inc 15		24 2	27 :	30
0.00-0.10	0			0.00								Ŧ
0.20-0.30 0.30-0.40	3			- 								+
0.40-0.50	2 3			- 								+
0.50-0.60 0.60-0.70	3			0.50			 					+
0.70-0.80 0.80-0.90	5			-  -								
0.90-1.00	10			-								
1.00-1.10 1.10-1.20	6			1.00 								
1.20-1.30 1.30-1.40	75											+
1.40-1.50	6			-  - 1 E0								+
1.50-1.60 1.60-1.70	6 6			— 1.50 —								+
1.70-1.80 1.80-1.90	75											
1.90-2.00 2.00-2.10	9 10			 2.00								
2.10-2.10	10			2.00 								
2.20-2.30 2.30-2.40	10 13			 - 								+
2.40-2.50 2.50-2.60	15 17			 								+
2.60-2.70	17										<u> </u>	-
2.70-2.80 2.80-2.90	16 17			 - 							<u> </u>	
2.90-3.00 3.00-3.10	24 24			 3.00								
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				 5.00								
Remarks			[			. T	 			Scale approx)	Logg Bv	ed
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GROUND INVESTIGATIONS IRELAND	Gro	und Investigations	Ireland	l td	Site								Probe Numb	) Der
A		www.gii.ie	noraria	210	Corne	elscourt							DPH	06
Method Dynamic Pi height 500r 50Kg.	robe DPH, Fall mm, hammer wt	Cone Dimensions 43.7mm	Ground I	Level (mOD)	Client DBFL								Job Numb 354-0	
o o rigi		Location	Dates	02/2019	Engine	er							Sheet	
Depth	Blows for						Blows	for Dep	th Incre	ement				
Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)	0	3 6		12 1			24	2	7 :	30
0.00-0.10	0		-	0.00										$\square$
0.20-0.30	23			-										+
0.30-0.40 0.40-0.50	6			-										+
0.50-0.60	7			0.50										
0.60-0.70 0.70-0.80	7 5			-  -										
0.80-0.90	57			-										T
0.90-1.00 1.00-1.10	7 9			1.00										+
1.10-1.20	6			-										+
1.20-1.30 1.30-1.40	3 3			-  -										
1.40-1.50 1.50-1.60	4 3			1.50										
1.60-1.70	3													+
1.70-1.80 1.80-1.90	4 4			- 										+
1.90-2.00 2.00-2.10	33			2.00										
2.10-2.20	5													
2.20-2.30 2.30-2.40	4 10													$\square$
2.40-2.50	11			 2.50										$\vdash$
2.50-2.60 2.60-2.70	15 18			2.50										+
2.70-2.80 2.80-2.90	20 28			-									_	
2.00-2.90	20			-					_					
			-	3.00										$\vdash$
				-  -										+
				 - 										<u> </u>
				3.50										
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				-					_					+
				4.00										+
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				- 										+
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Remarks		, we far 20mm	[			1					Sca	ale	Logg By	ed
retusal a	t 2.90m BGL 25 blo	ws Ior Jumm												
											1:2 Fia	25 ure N	4.0 <b>Io.</b>	0
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GROUND INVESTIGATIONS IRELAND	Gro	und Investigations	Ireland	Ltd	Site								Probe Numb	) Der
A	010	www.gii.ie	noraria		Corne	lscourt							DPH	07
Method Dynamic Pr height 500r 50Kg.	robe DPH, Fall nm, hammer wt	Cone Dimensions 43.7mm	Ground I	Level (mOD)	Client DBFL								Job Numb 8354-0	
Song.		Location	Dates 01/0	)2/2019	Engine	er							Sheet 1/1	
Depth (m)	Blows for Depth Incremen	Field Records	Level (mOD)	Depth (m)				s for De						
0.00-0.10	0			0.00	0	3 6	9	12	15	18 2	21 2	.4 2	27 3	30
0.10-0.20	1		-	-										
0.20-0.30 0.30-0.40	3 2			-										
0.40-0.50 0.50-0.60	33			 										$\vdash$
0.60-0.70	2													+
0.70-0.80 0.80-0.90	3 3			  										$\vdash$
0.90-1.00 1.00-1.10	3 2			 1.00										<u> </u>
1.10-1.20	2			- 										
1.20-1.30 1.30-1.40	1 0			-										
1.40-1.50 1.50-1.60	0			 										+
1.60-1.70	3													+
1.70-1.80 1.80-1.90	4 7			 										<u> </u>
1.90-2.00 2.00-2.10	14 20			 2.00										
2.10-2.20	19													
2.20-2.30 2.30-2.40	16 18			-										$\vdash$
2.40-2.50	18													+
				2.50										+
				-										
				-										
				3.00										$\vdash$
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													ļ	<u> </u>
				3.50										
				-										$\vdash$
				4.00										+
													L	
				-  -										
				4.50										
														$\vdash$
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				5.00										
<b>Remarks</b> Refusal a	t 2.50m BGL 25 blc	ws for 75mm									S (a	cale pprox)	Logge By	ed
												1:25	4.0	0
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											8	354-01	1-19 DF	2H07

	Gro	und Investigations	Ireland	Ltd	Site	lscourt					Probe Numb	
		www.gii.ie				iscourt					DPH	08
Method Dynamic Pr height 500r	robe DPH, Fall nm, hammer wt	Cone Dimensions 43.7mm	Ground L	_evel (mOD)	DBFL						Job Numb 8354-0	
50Kg.		Location	Dates		Engine	ər					Sheet	
				02/2019					 		17	I
Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)	0	3 6	for De 12			24 2	27 3	30
0.00-0.10	0 3		-	0.00								<b>—</b>
0.20-0.30 0.30-0.40	333		-	- 								+
0.40-0.50	3			-								+
0.50-0.60 0.60-0.70	4		-	0.50								+
0.70-0.80 0.80-0.90	333			-  								
0 90-1 00	3			-								
1.00-1.10	3			1.00 								
1.20-1.30 1.30-1.40	55			-								$\vdash$
1.40-1.50	5											$\vdash$
1.50-1.60 1.60-1.70	4			— 1.50 								+
1.70-1.80 1.80-1.90	4			-								L
1.90-2.00	4			-								
2.00-2.10 2.10-2.20	6 11		-	2.00								
2.20-2.30 2.30-2.40	9			-								+
2.40-2.50	15 118			-  								$\vdash$
2.50-2.60 2.60-2.70	118		-	2.50 								118
2.70-2.80 2.80-2.90	20 32											
2.90-3.00 3.00-3.10	25 24			 3.00								32
3.00-3.10	24		-	3.00 								
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Remarks		1		_ 0.00				1	 	Scale approx)	Logg	ed
										1:25 Figure I	4.0 <b>No.</b>	U

	GROUND INVESTIGATIONS IRELAND	Gro	und Investigations	Ireland	Ltd	Site								Prob Num	) Der
Priority colspan="6">Priority colspan="6">Priority colspan="6">Priority colspan="6"Priority colspan="6"Priority colspan="6"Priority colspan="6"Priority colspan="6"Priority colspan="6"Priority colspan="6"Priority colspan="6"Priority colspan="6"0.000000000000000000000000000	A		www.gii.ie	noraria	210	Corne	elscourt							DPH	09
LeationDestring IDestring IDestring IDestring IDestring IDestring IDestring IDestring IDestring IDestring IDestring IDestring IDestring 	Dynamic Pr height 500n	obe DPH, Fall nm, hammer wt		Ground I	Level (mOD)									Numl	
Image     Image   <	Jury.		Location		)2/2019	Engine	er								
Non-construction         Non-construction<	Depth	Blows for	Field Records	Level (mOD)	Depth			E	Blows fo	r Depth					
010420       0 <td></td> <td></td> <td></td> <td>(1100)</td> <td></td> <td>0</td> <td>3</td> <td>69</td> <td>12</td> <td>15</td> <td>18</td> <td>21</td> <td>24 2</td> <td>27</td> <td>30</td>				(1100)		0	3	69	12	15	18	21	24 2	27	30
0.00.00       6       0.00.00       0       0.00.00															
939.500       3       0.00	0.20-0.30														$\top$
0.00-2.70       3       -	0 40-0 50	3			-										$\vdash$
0200.000 1000       3 100.100       3 100.100       1 100.100       1 100.100 </td <td></td> <td></td> <td></td> <td></td> <td>0.50</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>+</td>					0.50										+
900110       3       1 </td <td>0.70-0.80</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	0.70-0.80				-		_								
100-100       3       100-100       3       100-100       3       100-100       3       100-100					-		-								
130-100       3       100 <t< td=""><td>1.00-1.10</td><td>3</td><td></td><td></td><td> 1.00</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td><math>\square</math></td></t<>	1.00-1.10	3			1.00										$\square$
140-170       3         120-170       3         120-170       3         120-170       3         120-170       3         120-170       3         120-170       3         120-170       4         120-170       4         120-200       4         120-200       4         120-200       7         200-200       7         200-200       7         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       13         200-200       14         200-200       10         200-200       10         200-200       10					-  -		-								$\vdash$
180-170       3         130-130       3         130-200       4         200-200       5         2202-200       75         2202-200       75         2202-200       75         2202-200       75         2202-200       75         2202-200       75         2202-200       75         2202-200       75         2202-200       75         2202-200       75         2202-200       77         2202-200       74         2002-200       77         2202-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200       74         2002-200 </td <td></td> <td>_</td>															_
178-190       3       1 </td <td>1.50-1.60</td> <td></td> <td></td> <td></td> <td> 1.50</td> <td></td>	1.50-1.60				1.50										
180-100       2       - </td <td></td> <td></td> <td></td> <td></td> <td>- - </td> <td></td>					- - 										
2002.10       4       2.00       2.00       <	1.80-1.90	2			-										$\vdash$
2302.200       7       7       13       1	1.90-2.00 2.00-2.10				2.00										+
240-250       13         260-270       17         270-280       13         280-290       14         14       10															
2.502.00       15       2.50       1 <t< td=""><td>2.20-2.30 2.30-2.40</td><td>7 15</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	2.20-2.30 2.30-2.40	7 15			-										
2.70-2.80       13       1	2.40-2.50 2.50-2.60	13 15			2.50										$\square$
Remarks		17			-										$\vdash$
Remarks       Refused at 2.90m BGL for 25mm       See	2.70-2.80 2.80-2.90	13 14													+
Remarks       Refused at 2.90m BGL for 25mm       See					- 3.00										
Remarks       Refusal at 2.90m BGL for 25mm       Scale															
Remarks       Refusal at 2.90m BGL for 25mm       Scale					-										$\square$
Remarks       Refusal at 2.90m BGL for 25mm       Scale															$\vdash$
Remarks Refusal at 2.90m BGL for 25mm       Image: Constraint of the constra					3.50 										-
Remarks Refusal at 2.90m BGL for 25mm       Image: Constraint of the constra					-										
Remarks Refusal at 2.90m BGL for 25mm       Image: Constraint of the constra															
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Remarks Refusal at 2.90m BGL for 25mm       Remarks I 1.25       Image: Sector					 										<u> </u>
Remarks Refusal at 2.90m BGL for 25mm     Scale (approx)     Logged       1:25     4.00					4.50										
Remarks Refusal at 2.90m BGL for 25mm     Scale (approx)     Logged       1:25     4.00					-										Γ
Remarks Refusal at 2.90m BGL for 25mm     Scale (approx)     Logged       1:25     4.00					-										$\vdash$
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WWW, GI, Lie         Dimension         Oround Level (mD)         Dimension         Dimension         Oround Level (mD)         Dimension         Dimens	GROUND INVESTIGATIONS IRELAND	Gro	und Investigations	Ireland	l td	Site								Prob Num	e ber
Parametrize         Data di la construire         Desc.	A		www.gii.ie	noiana		Corne	elscourt							DPH	110
LeadonDefinitionD	Dynamic Pr height 500r	robe DPH, Fall mm, hammer wt	Cone Dimensions	Ground I	Level (mOD)		-						ŧ	Num	
Open Participant Control         Field Records         Long D         Org         Image: Display Sector	oortg.		Location		)2/2019	Engine	er								
000-010     0 <t< td=""><td>Depth</td><td>Blows for</td><td>Field Records</td><td></td><td></td><td></td><td></td><td>Blows</td><td>s for De</td><td>pth Inc</td><td>rement</td><td></td><td></td><td></td><td></td></t<>	Depth	Blows for	Field Records					Blows	s for De	pth Inc	rement				
0.00.00       0<				(		0	3 6	9	12	15	18 2	21 2	24 2	27	30
0.000.00       3         0.000.00       4         0.000.00       3         0.000.00       4         0.000.00       4         0.000.00       4         0.000.00       4         0.000.00       4         0.000.00       4         0.000.00       4         0.000.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       4         1.00       5         1.00       5         1.00       5         1.00       5         1.00       5         1.00       5         1.00       5         1.00       5         1.00       5         1.00       1.00         1.00       1.00         1.00       1.00         1.00       1.00 <t< td=""><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>				-											
939.00       5       0 </td <td>0.20-0.30</td> <td>3</td> <td></td> <td>-</td> <td></td> <td><math>\top</math></td>	0.20-0.30	3		-											$\top$
000.070       4       1<	0.40-0.50	5		-	-										+
0020000 0000100 1001100 1101100 1001100 1100100					0.50										+
900110       3       1.00	0.70-0.80	3		-											
1.00-1.20       4         1.00-1.20       4         1.30-1.40       4         1.30-1.40       4         1.30-1.40       5         1.30-1.40       5         1.30-1.40       5         1.30-1.40       5         1.30-1.40       5         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-1.70       6         1.30-2.80       9         2.40-2.80       13         2.30-2.70       16         2.30-2.70       16         2.30-2.70       16         2.30-2.70       16         2.30-2.70       16         2.30-2.70       16         2.30-2.70       10       10       10         2.40-2.80       20       10       10       10         2.40-2.80       20       10       10       10       10         2.40-2	0.90-1.00	3			-		-								
1301-130       4       1	1.00-1.10			-	1.00 										+
1401.70       6         1201.70       9         1300.100       9         1300.100       9         1300.100       9         1202.200       9         2102.200       11         2202.300       12         2302.400       12         2402.200       13         2500.200       14         2500.200       14         2500.200       14         2500 <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>+</td>					-										+
1.50.100       5<				-	-										-
120-200       9       9       1 </td <td>1.50-1.60</td> <td>5</td> <td></td> <td>-</td> <td> 1.50</td> <td></td>	1.50-1.60	5		-	1.50										
100.210       9       11         200.220       11         200.230       12         200.200       13         200.200       15         200.200       15         200.200       15         200.200       15         200.200       15         200.200       16         200.200       10       10				-	-										
2002.10       9       11       2.00       11       1 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>+</td></t<>															+
220230       12       240250       13       250200       15       15       1	1.90-2.00 2.00-2.10	9		-	2.00										+
240.250       13       2.50       10				-											
260-270 16 2.70-2.80 20	2.20-2.30 2.30-2.40	12 12		-	-				_						
2.70-2.80 20 - 3.00 - 4.00 - 4.00	2.40-2.50 2.50-2.60	13 15		-	2.50										
Remarks       Refusal at 2.60m BGL 25 blows for 20mm       Scale       Scale<		16													+-
Remarks       Refusal at 2.80m BGL 25 blows for 20mm       Scale       Logged	2.70-2.80	20		-	-										+
Remarks       Refusal at 2.80m BGL 25 blows for 20mm       Scale       Logged					 3.00										
Remarks       Refusal at 2.80m BGL 25 blows for 20mm       Remarks       Scale       Scal				-	-										
Remarks       Refusal at 2.80m BGL 25 blows for 20mm       Remarks       Scale       Scal															$\top$
Remarks       Refusal at 2.80m BGL 25 blows for 20mm       Remarks       Scale       Scal															+
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Remarks L       Scale L       Scale L       Scale L       L </td <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>+</td>				-											+
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale L       Scale L       Scale L       Scale L       L <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>					-										
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale L       Scale L       Scale L       Scale L       L <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>					-										
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale L       Scale L       Scale L       Logged Figure No.				-	4.00 										+
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.					-										+
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.       Scale Figure No.					 - 										+
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale (approx)       Logged By         1:25       4.00         Figure No.				-	4.50										
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale (approx)       Logged By         1:25       4.00         Figure No.				-	-										
Remarks Refusal at 2.80m BGL 25 blows for 20mm       Scale (approx)       Logged By         1:25       4.00         Figure No.															+
1:25 4.00 Figure No.					5.00										<u> </u>
Figure No.	Remarks Refusal a	t 2.80m BGL 25 blo	ws for 20mm									(a	Scale approx)	Logg By	ed
													1:25	4.0	00
												F	igure I	No.	

	Gro	und Investigations	Ireland	Ltd	Site							Prob Num	e ber
		www.gii.ie				elscourt						DPH	111
Method Dynamic Pr height 500r 50Kg.	robe DPH, Fall nm, hammer wt	Cone Dimensions 43.7mm	Ground I	Level (mOD)	Client DBFL							Job Num 8354-0	
oong.		Location	Dates 01/0	)2/2019	Engine	er						Shee 1/	
Depth (m)	Blows for Depth Incremen	Field Records	Level (mOD)	Depth (m)	0	3 6		ows for D	Depth Inc 15		24 2	27	30
0.00-0.10	0			0.00			, 9 						+
0.10-0.20	2			_									
0.20-0.30 0.30-0.40	3 3			-		-							
0.40-0.50 0.50-0.60	33			 									+
0.60-0.70	3												<u> </u>
0.70-0.80 0.80-0.90	2 4												+
0.90-1.00 1.00-1.10	4 6			 1.00									
1.10-1.20	8			- 									
1.20-1.30 1.30-1.40	9 8			-									
1.40-1.50 1.50-1.60	7			 1.50									+
1.60-1.70	6												+
1.70-1.80 1.80-1.90	6 7												+
1.90-2.00 2.00-2.10	8			- 2.00									
2.10-2.20	10			- 									
2.20-2.30 2.30-2.40	16 25												
2.40-2.50 2.50-2.60	17 16												+
2.60-2.70	18			-  -									+-
2.70-2.80 2.80-2.90	20 22			-									
				 3.00									
				 - 									+
				-  - 2 E0									+
				3.50 									+
				-									
				4.00 									+
				- 									+
				 - 									+
				4.50									
				- 									
				 - 									$\top$
Remarks				5.00							Scale	Logg	
Refusal a	t 2.90m BGL 25 blc	ws for 50mm									Scale approx)		
											1:25 Figure	4.( No.	)0
											8354-0 <sup>-</sup>		PH11

GROUND INVESTIGATIONS IRELAND	Gro	und Investigations	Ireland	l td	Site									Prob Num	e ber
A		www.gii.ie	licialia	LIG	Corne	elscourt								DPH	<del>1</del> 12
Method Dynamic Pi height 500r 50Kg.	robe DPH, Fall nm, hammer wt	Cone Dimensions 43.7mm	Ground I	₋evel (mOD)	Client DBFL	<u>.</u>								Job Num 8354-0	
oong.		Location	Dates	02/2019	Engine	er								Shee 1/	
Depth (m)	Blows for Depth Incremen	t Field Records	Level (mOD)	Depth (m)							rement				
0.00-0.10	1			0.00	0	3	6 9	) 1	12 ·	15	18 2	21	24 2	27	30
0.10-0.20	4			-											
0.20-0.30 0.30-0.40	3 2			-											
0.40-0.50 0.50-0.60	33			 											-
0.60-0.70	3														
0.70-0.80 0.80-0.90	33			-		-									+
0.90-1.00 1.00-1.10	3 4			 1.00										<u> </u>	
1.10-1.20	5			-  -											
1.20-1.30 1.30-1.40	6 8			-											
1.40-1.50 1.50-1.60	9			 											+
1.60-1.70	9			-											+
1.70-1.80 1.80-1.90	8 8			 											+
1.90-2.00 2.00-2.10	8 9			2.00											_
2.10-2.20	10			-											
2.20-2.30 2.30-2.40	12 13														$\square$
2.40-2.50 2.50-2.60	14 15			 2.50											+
2.60-2.70	17			-											+-
2.70-2.80 2.80-2.90	16 23			-											+
				3.00											
			-	-											
				-											$\square$
				 3.50											+
				-											+
				-										<u> </u>	<u> </u>
				- - - 4.00											
				-											+
				- 4.50											+
				4.50 										<u> </u>	+
				-											
				-											
Remarks Refusal a	t 2.90m BGL 25 blc	l		5.00		1			<u> </u>	<u>+</u>	<u> </u>	+	Scale approx)	Logg	jed
														4.0	
												F	1:25 Figure		10
													8354-0	ים 1 <sub>-</sub> 19	PH12

## **APPENDIX 5** – Window Sample Records

AND A	Grou	nd Inv	vestigations Ir www.gii.ie	eland	Ltd	Site Cornelscourt	Numbe WS-0
	<b>Method</b> dowless Sampler	Dimensio	ons		<b>Level (mOD)</b> 52.77	Client	Job Numbe 8354-01-
		Location 722	343.8 E 725846.6 N	Dates 21	/01/2019	Engineer DBFL	Sheet 1/1
pth n)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
1.00	EN				(1.00)	MADE GROUND: Firm, light brown, sandy, slightly gravelly CLAY with occasional granite cobbles. Gravel is medium to coarse and angular to sub-angular. Sand is fine to coarse. Occasional fragments of red brick, coal and wood. Occasional glass and plastic.	
2.00	EN			51.77	- 1.00 - (0.40)	MADE GROUND: Firm, light brown, sandy, slightly gravelly CLAY, Gravel is fine to coarse and angular to sub-angular. Fine to coarse sand. Occasional fragments of red brick and coal. Rootlets.	
				51.37	- 1.40 - 1.40 	Firm, light brown, sandy, slightly gravelly CLAY with occasional cobbles. Sand is fine to coarse. Gravel is fine to coarse and angular to sub-angular. Some sub-rounded to rounded mudstones.	
3.00	EN			50.77	2.00 	Firm, light brown, sandy, slightly gravelly, CLAY with occasional cobbles of boulder clay. Gravel is fine to coarse and angular to sub-angular.	
				49.97	2.80	Complete at 2.80m	
arks	80m					Scale	Logge
al at 2.8	80m.					Scale (approx)	
						1:25 Figure	PM No
						Figure 8354-0	<b>No.</b> 1-19.WS-0

A	Grou	1	estigations Ir www.gii.ie			Cornelscourt	Num WS	
<b>Excavation</b> I Drive-in Wind	Method dowless Sampler	Dimension	S		Level (mOD) 52.52	Client	Job Num 8354-	nbe
		Location 72235	57.4 E 725828.9 N	Dates 22	/01/2019	Engineer DBFL	She 1	et 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Leger	nd
.00-1.00	EN			52.27 51.92	(0.25) 0.25 (0.35) 0.60	TOPSOIL Firm, light brown, slightly sandy, slightly gravelly, CLAY. Gravel is fine to coarse and angular to sub-angular. No recovery		
00-2.00	EN			51.52	(0.40) - (0.40) - 1.00 - (0.60)	Firm, light brown, slightly sandy, slightly gravelly, CLAY. Gravel is fine to coarse and angular to sub-angular.		
				50.92		No recovery		
00-3.00	EN			50.52	2.00	Firm, light brown grading into grey, slightly sandy, slight gravelly CLAY with occasional cobbles of limestone. Gr is fine to coarse and angular to sub-angular. Fine to coa sand. Hydrocarbon odours noted from 2.00m - 2.85m.	ly avel arse 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ؖ؋ؗڡ۠ٳ۬؋۫؞ٳ؋ڡٳ؋؋ٳ؋؞ٳ؋ڡٳ؋؋
				49.67	2.85 	Complete at 2.85m		á [ č. ]
<b>lemarks</b> /drocarbon efusal at 2.	odours at 2.0m - 2. 85m.	85m.				Sc (ap)	cale Log prox) By	ge
							:25 PI gure No.	м

s Ground			WS-0
	Ind Level (mOD) 52.36	Client	Job Numbe 8354-01-
Dates 2	s 22/01/2019	Engineer DBFL	Sheet 1/1
Field Records	rel Depth (m) (Thickness)	Description	Legend
52.0 51.3	2.06 (0.30) .06 (0.30) (0.70) .070	TOPSOIL Firm, light brown, slightly sandy, slightly gravelly CLAY with rare cobbles. Gravel is fine to coarse and of mixed lithologies with angular to sub-angular boulder clay and quartz. Some sub-rounded mudstone. Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional sub-angular cobbles of limestone. Sand is fine to coarse. Gravel is fine to coarse and angular to sub-angular.	ଚର୍ଟ ଜନ୍ମ ବର୍ଟ ଜନ୍ମ କରୁ ଜନ୍ମ ସାରୁ ସ୍ୱାସ ଜନ୍ମ କରୁ ସାରୁ ସାନୁ ସାନୁ ସାନୁ ସାନୁ ସାନୁ ସାନୁ ସାନୁ ସାନ
50.3	0.36 - 2.00 -	Firm, light brown, sandy, slightly gravelly, CLAY with occasional sub-angular to subrounded cobbles. Gravel is fine to coarse and angular to sub-angular with fragments of granite. Fine to medium sand.	૱ૺ૾ઌૺ૿૱ૺઌૺ૿૱ૺઌ૾ઌૺ૱ૺૡઌૺૡૡૺૡ ૱ૡઌ૽ૡૺ૱ૢૡઌૡૺૡૡૡૡૡૡૡૡૡ ૱ૡઌૡૡૡૡ૽ૡૡૡ૽ૡૡૡૡૡૡૡૡૡૡ
49.6	9.66 - 2.70 -	Complete at 2.70m	<u><u><u>6</u></u><u>-</u><u>7</u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>
		Scale (approx)	Logged By PM
			Scale (approx) 1:25 Figure I 8354-0

RELAND	Grou	nd Inve	estigations Ire www.gii.ie	eland I	_td	Site Cornelscourt	Numbe
Excavation I Drive-in Wind	Method dowless Sampler	Dimensior pM to			<b>Level (mOD)</b> 53.29	Client	Job Numbe 8354-01-
		Location 72233	37.6 E 725838.9 N	Dates 21	/01/2019	Engineer DBFL	Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
0.00-1.00	EN				(0.30)	TOPSOIL	
				52.99	0.30 (0.40)	MADE GROUND: Firm, brown, sandy, slightly gravelly, CLAY with occasional sub-angular cobbles of granite and boulder clay. Gravel is fine to coarse and angular to sub-angular. Fragments of red brick. Occasional plastic and rootlets.	
				52.59	0.70 (0.30)	No recovery	
.00-2.00	EN			52.29	1.00 	Firm, light brown, sandy, slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse and angular to sub-angular. Fine to coarse sand.	0.0.0.0 0.0.0 0.0.0 0.0.0
					(0.70)		
				51.59	1.70	Firm, grey, sandy, slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse and angular to sub-angular. Hydrocarbons noted from 1.70m - 3.20m.	
.00-3.00	EN				(1.00)		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
				50.59	- 	Firm, grey, sandy, gravelly CLAY. Fine to coarse, angular to sub-angular gravel.	
.00-4.00	EN			50.09	- (0.50) - 3.20	Complete at 3.20m	
					-		
					- - - - - -		
					- 		
Remarks ydrocarbon	odours from 1.70m	- 3.20m.			Ē	Scale (approx)	Logged By
						1:25	PM
						Figure	<b>No.</b> 1-19.WS-04

	Grou		estigations Ir www.gii.ie			Cornelscourt	
Excavation Method Drive-in Windowless Sampler		Dimensions Location 722350.9 E 725825.8 N		52.89		Client	
						Engineer DBFL	Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
.00-1.00	EN			52.59	(0.30) - 0.30	TOPSOIL Firm, light brown, slightly sandy, slightly gravelly, CLAY with rare subrounded cobbles. Gravel is fine to coarse and	
					 (0.70) 	rare subrounded cobbles. Gravel is fine to coarse and angular to sub-angular	
00-2.00	EN			51.89	- 1.00 - 1.00 	Firm, light brown, slightly sandy, sightly gravelly Clay with occasional cobbles of limestone. Gravel is fine to coarse and of mixed lithologies with subangular boulder clay and subrounded to rounded mudstone.	
.00-3.00	EN			50.99	- 1.90 - 1.90 	Firm, sandy, slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse and angular to sub-angular. Fine to coarse sand. Hydrocarbon odours noted from 1.90m - 2.50m.	
				50.39		Complete at 2.50m	
Remarks ydrocarbon efusal at 2.5	odours from 1.90m 50m.	- 2.50m.			<u> </u>	Scale (approx)	Logge By
						1:25 Figure	PM

	Grou	nd Inv	vestigations Irel	land	Ltd	Site	Number
			www.gii.ie			Cornelscourt	WS-06
Excavation Drive-in Win	<b>Method</b> dowless Sampler	Dimensi	ons		Level (mOD) 52.59	Client	Job Number 8354-01-19
		Location		Dates 22	2/01/2019	Engineer	Sheet
Danáh			722362.4 E 725803.9 N		Danéh	DBFL	1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Kater
0.00-1.00 1.00-2.00 2.00-3.00	EN			52.34 51.69 50.59	(0.65) 0.90 (1.10) 2.00	TOPSOIL Firm, light brown, slightly sandy, slightly gravelly, CLAY with rare sub-rounded cobbles of boulder clay. Gravel is fine to medium and angular to sub-angular Firm, grey, sandy, gravelly CLAY. Gravel is medium to coarse and angular to sub-angular. Fine to coarse sand. Firm, sandy, gravelly CLAY. Gravel is medium to coarse and angular to sub-angular. Fine to coarse sand.	
				50.19	2.40		* * * * * * * * * * * * * * * * * * *
						Complete at 2.40m	
<b>Remarks</b> Refusal at 2.	40m.	<u>ı                                    </u>		1		Scale (approx	() Logged By
						1:25	PM
						Figure 8354-	<b>e No.</b> 01-19.WS-06

A	Grou		estigations Ir www.gii.ie			Cornelscourt	Numbo WS-0	
<b>Excavation I</b> Drive-in Wind	Method dowless Sampler	Dimensior	IS		Level (mOD) 53.95	Client		
		Location 72233	33.1 E 725833.3 N	Dates 21/01/2019		Engineer DBFL	Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	
.00-1.00	EN			53.55	(0.40) (0.40) 0.40	TOPSOIL MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly, CLAY with rare sub-rounded cobbles of boulder clay. Gravel is fine to medium and angular to sub-angular		
.00-2.00	EN			53.05 52.95	(0.50) 0.90 (0.10) 1.00	No recovery Firm, slightly sandy, slightly gravelly CLAY with occasional sub-angular cobbles. Gravel is fine to coarse and		
					(1.00)	sub-angular. Medium to coarse sand.		
.00-3.00	EN			51.95	2.00 	Firm, grey, sandy, slightly gravelly, CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Sand is medium to coarse. Hydrocarbon odours noted from 2.0m to 2.90m.		
.00-4.00	EN			51.05	(0.30)	Firm, grey, sandy, slightly gravelly CLAY.		
						Complete at 3.20m		
<b>Remarks</b> Hydrocarbon Refusal at 3.2	odours from 2.0m - 20m	3.20m.			<u> </u>	Scale (appro	e Logge x) By	
						1:25 Figur 8354	PM e No. 01-19.WS-(	

	Grou	nd Inv	estigations Ir www.gii.ie	eland	Ltd	Site Cornelscourt	Number WS-08
Excavation Method Drive-in Windowless Sampler		Dimensions			Level (mOD) 53.18	Client	Job Number 8354-01-
		Location 722343.5 E 725821.1 N		21/01/2019		Engineer DBFL	<b>Sheet</b> 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
0.00-1.00	EN			52.78 52.18	- (0.60) - 1.00	TOPSOIL         MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY. Fine to coarse gravel of mixed lithologies, sub-angular quartz and boulder clay with sub-rounded to rounded mudstone. Occasional fragments of red brick. Plastic. Rootlets.         Firm, light brown grading into grey at 1.40m, sandy, slightly gravelly CLAY with occasional sub-angular cobbles. Fine to coarse, sub-angular Gravel. Fine to coarse sand.	
2.00-3.00	EN			51.38 51.18	(0.20)	No recovery Firm, grey, sandy, slightly gravelly, CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Sand is medium to coarse. Hydrocarbon odours noted from 2.00m to 2.80m.	
				50.38		Complete at 2.80m	
Remarks Hydrocarbon	odours from 1.80m 80m.	- 2.80m.			-	Scale (approx)	Logged By
verusar at 2.8	oviii.					1:25	PM
						<b>Figure</b> 8354-0	

A	Grou	na inv	estigations Ir www.gii.ie		LIQ	Cornelscourt	Numbe
Excavation Method Drive-in Windowless Sampler		Dimensio	ns	Ground Level (mOD) 53.08		Client	
		Location 722351.7 E 725808.8 N		Dates 21/01/2019		Engineer DBFL	Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
.00-1.00	EN			52.73 52.38 52.08 51.78 51.08 50.08	(0.35) 0.35 0.35 0.70 0.30) 1.00 0.30) 0.70 0.30) 0.30) 0.70 0.70	TOPSOIL         Firm, light brown, slightly sandy, slightly gravelly CLAY. Fine to coarse, sub-angular to sub-rounded gravel.         Firm, grey, sandy, gravelly CLAY with occasional sub-rounded cobbles of mudstone. Fine to coarse, sub-angular gravel. Fine to coarse sand.         Firm, brown, sandy, gravelly CLAY. Gravel is fine to coarse and angular to sub-angular.         Firm, brown, slightly sandy, slightly gravelly CLAY. Fine to coarse gravel of mixed lithologies, sub-angular boulder clay with sub-angular to sub-rounded quartz and mudstone.         Firm, grey, sandy, slightly gravelly CLAY with occasional sub-rounded cobbles of boulder clay. Gravel is fine to coarse and angular to sub angular.         Complete at 3.00m	
Remarks efusal at 3.	00m.					Scale (approx)	Logged By
						1:25 Figure 1 8354-01	PM <b>lo.</b> -19.WS-0

Numbe WS-1		Site Cornelscourt		www.gii.ie							
Job Numbe 8354-01-		Client Engineer DBFL		Ground	ons	Dimensio	<b>Method</b> dowless Sampler	Excavation			
Sheet 1/1				Dates 21	Location 722327.9 E 725827.8 N						
Legend		Description	Depth (m) (Thickness)	Level (mOD)	Field Records	Water Depth (m)	Sample / Tests	Depth (m)			
	Y with s,	TOPSOIL         MADE GROUND: Firm, light brown, slightly sandy, slight gravelly CLAY with cobbles of subangular granite and subrounded mudstone. Fine to coarse, sub-angular gravel. Rootlets.         Firm, brown, slightly sandy, slightly gravelly CLAY with occasional sub-rounded cobbles. Fine to coarse, sub-angular gravel. Fine to coarse sand.         Firm, brown grading into grey at 2.60m, slightly sandy, slightly gravelly CLAY with occasional sub-rounded cobbles. Fine to coarse, sub-angular gravel. Fine to coarse sand.         Firm, brown grading into grey at 2.60m, slightly sandy, slightly gravelly CLAY. Gravel is fine to coarse and angut to sub-angular.         Firm, grey, slightly sandy, slightly gravelly CLAY. Fine to coarse, angular to sub-angular gravel. Hydrocarbon odd noted from 2.90m - 3.20m         Complete at 3.20m	(0.30) (0.30) (0.60) (0.60) (1.00) (1.00) (1.00) (1.00) (0.30)	54.06 53.46 52.46 51.46 51.16			EN	0.00-1.00			
	Scale (approx)				20m.	2.90m - 3.20	n odours noted from 20m.	<b>Remarks</b> lydrocarbon Refusal at 3.			
PM No.	1:25 Figure N										
1-19.WS-1	-										

A	Grou		estigations Ir www.gii.ie			Cornelscourt		ber -11
Excavation Method Drive-in Windowless Sampler		Dimensior	ns		<b>Level (mOD)</b> 53.70	Client		<b>be</b> )1-
		Location 7223	36.8 E 725816.8 N	Dates 21	/01/2019	Engineer DBFL	<b>Sheet</b> 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legen	d
.00-1.00	EN			53.30 53.00 52.00 50.50	- (0.30)	TOPSOIL         MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional cobbles of sub-angular granite. Fine to coarse, sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular Gravel. Fine to coarse sand. Hydrocarbon odours noted from 0.70m to 1.70m.         Firm, grey, sandy, gravelly CLAY. Fine to coarse, angular to sub-angular Gravel. Medium to coarse sand.         Firm, grey, sandy, gravelly CLAY. Fine to coarse, sub-angular Gravel. Medium to coarse sand.         Form, grey, sandy, gravelly CLAY. Fine to coarse, angular to sub-angular Gravel. Medium to coarse sand.         Complete at 3.20m		
Remarks ydrocarbon efusal at 3.	odours noted from 20m.	0.70m - 3.20	)m.			Scale (approx	) Logg By	
						1:25 Figure 8354-0		

A	Grou		estigations Ir www.gii.ie			Cornelscourt	Numb	
Excavation Method Drive-in Windowless Sampler		Dimensior	IS		Level (mOD) 53.62	Client		
		Location 7223	50.2 E 725796.3 N	Dates 22/01/2019		Engineer DBFL	<b>Sheet</b> 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	
.00-1.00	EN				 (0.45)	TOPSOIL		
				53.17	- 0.45 - 0.55)	MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Frequent fragments of wood and red brick. Frequent plastic and clothing. Rootlets.		
.00-2.00	EN			52.62	1.00	Firm, grey, slightly sandy, slightly gravelly CLAY with occasional sub-rounded cobbles of boulder clay and mudstone. Fine to coarse, angular to sub-angular gravel. Fine to coarse sand.		
					(1.00)			
00-3.00	EN			51.62	2.00	Firm, grey, slightly sandy, gravelly CLAY with occasional cobbles. Fine to coarse, angular to sub-angular gravel. Medium to coarse sand.		
					(1.00)			
				50.62	3.00	Complete at 3.00m	<u>, 197</u>	
					- - - - - - - - -			
<b>emarks</b> efusal at 3.	00m.				 	Scale (approx)	Logge By	
						1:25 Figure	PM <b>No.</b> 1-19.WS-	

A	Grou	na inve	estigations Ir www.gii.ie	eland	LIC	Cornelscourt	Numb WS-
<b>Excavation</b> I Drive-in Wind	Method dowless Sampler	Dimension	S		Level (mOD) 52.50	Client	Job Numb 8354-0
		Location 72234	1.8 E 725866.3 N	Dates 22	/01/2019	Engineer DBFL	Sheet
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
.00-1.00	EN			52.15 51.50	(0.35) (0.35) (0.35) (0.65) (0.65) (0.65) (0.65) (0.65)	TOPSOIL         MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional sub-angular cobbles. Fine to coarse, sub-angular gravel. Fragments of wood, red brick and granite. Frequent plastic and clothing. Rootlets.         Firm, grey, sandy, gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Gravel is fine to coarse and angular to sub-angular. Sand is fine to coarse	
00-3.00	EN			50.50	2.00	Firm, grey, sandy, gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Fine to coarse sand.	
				49.50		Complete at 3.00m	
Remarks efusal at 3.	00m					Scale	kôdad
Remarks efusal at 3.	00m					Scale (approx) 1:25 Figure	PM

### **APPENDIX 6** – Cable Percussion and Rotary Borehole Records

Machine : Da			1		igations Ire vw.gii.ie <sup>rr</sup>	1	Level (mOD)	Cornelscourt	Number BH-02 Job
	water		20	0mm to 2	2.05m	Ground	Level (IIIOD)	DBFL	Number 8354-01-1
Core Dia: H	Q mm		-	0mm to 1	17.40m				
Method : Ro	otary Core	d	Locatio Co	<b>n</b> rnelscou	ırt	Dates 14 04	4/02/2019- 4/03/2019	Engineer	Sheet 1/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
1.00-1.45					1,0/1,1,0,1 SPT(C) N=3			TOPSOIL MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with rare sub-angular to subrounded cobbles and occasional plastic and ceramics. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel. Very soft to soft light brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded granite.	v,
2.00	50				25/50 Water strike(1) at 2.00m, rose to 1.60m in 20 mins.		2.00	Driller notes sandy Silt and Gravel. Recovery consists of grey subrounded sandy GRAVEL. Obstruction granite rock	<u>6 7 7</u> 7
2.00-2.05 2.40 2.00-12.00	13				SPT(C) 25*/50 50/0 CR				
	0						F		
5.40 5.40-5.69	73				6,11/19,31 SPT(C) 50/135		5.60 1.50) 1.5	Driller notes Brown Boulder Clay. Recovery consists of grey brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sub-angular to subrounded gravel.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6.90 6.90-7.26	30				4,9/14,18,18 SPT(C) 50/205			Driller notes Brown Clay and Gravel. Recovery consists of brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sub-angular to subrounded gravel.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8.40 8.40-8.85					4,6/6,9,11,9 SPT(C) N=35				
9.90	17								0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Remarks							E	Scale	Logged
Groundwater Obstruction g			m.					Scale (approx)	Logged By
								1:50	PM
								Figure	No.

Machine : Da				W	igations Ire ww.gii.ie			Site Cornelscourt		Boreh Numb BH-(	er
	water	+ 144	Casing	0mm to	2.05m	Ground	Level (mOD)	Client DBFL		Job Numb 354-01	
Core Dia: HC	ג mm		Locatio	0mm to n	17.40m	Dates		Engineer		Sheet	
Method : Ro	otary Core	d		rnelscou	ırt	14	4/02/2019- 4/03/2019			2/2	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	L	.egend	Water
9.90-10.35	0				3,3/4,3,5,5 SPT(C) N=17		(1.50)	Driller notes no recovery			
11.40 11.40-11.85					6,8/8,10,10,13 SPT(C) N=41		(0.60)	Driller notes Sand and Clay. Recovery consists of sandy CLAY.	· · ·		
12.00 12.00-15.10	93	68	68		CR			Strong to very strong coarsely crystalline massive orang white GRANITE. Partially weathered with quartz sand or fracture surfaces.			
12.90	100	90	85	6					*************		
14.40							(5.40)		***********	*****	
15.10-17.40	100	69	69	7	CR				·*************		
15.90 16.00	100	94	90	5	-				**********		
17.40					-		17.40	12.00m to 17.40m Fracture set:1 Close to widely spaced at 0-20 degrees orientation, stepped rough,			
								tight to open, stained brown.			
Remarks								Sc.		Logge By	d
								(app			
								1:5 Fia	ure No	PM	
								-	54-01-1		)2

A			1	W	igations Ire ww.gii.ie			Cornelscourt		Bl	umber H-03
	water	+144	20	Diamete Omm to Omm to	6.00m	Ground	Level (mOD)	Client DBFL			b Imber 4-01-1
Core Dia: Ho	um 2		Locatio		725871.9 N	Dates 14 05	4/02/2019- 5/03/2019	Engineer			1/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
1.00-1.45 1.00-2.00					1,1/0,1,1,1 SPT(C) N=3 B		(0.20) (0.20) (0.90) (0.90) (1.10) (1.90)	Brown slightly sandy slightly gravelly TOPSOIL with frequent rootlets. MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with concrete slab. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel. Firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse			
2.00-2.45 2.00-3.00					3,2/3,2,2,2 SPT(C) N=9 B			sub-angular to subrounded gravel.			
3.00-3.45 3.00-4.00					4,5/6,6,6,7 SPT(C) N=25 B		(1.70)	Stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles . Sand is fine to coarse with fine to coarse sub-angular to subrounded gravel.		<b>▼</b> 1	
4.00-4.45 4.00-5.00					9,11/12,11,10,12 Water strike(1) at 4.00m, rose to 3.00m in 20 mins. SPT(C) N=45 B		(1.70)	Very stiff brown slightly sandy slightly gravelly	861.0001.0001.0001 869.8001.0001.0001 8.80.8001.0001.0001 8.80.0000000000	⊻1	
5.00-5.33 5.00-6.00 5.40					14,16/19,20,11 SPT(C) 50/180 B			laminated CLAY with rare gravel and rare sub - angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel. Frequent shell fragments.			
6.00-6.23	100				12,30/38,12 SPT(C) 50/80		5.80 (1.40)	Driller notes brown boulder CLAY to 9.70m. Recovery consists of greyish brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel. Obstruction at 5.80m onto possible granite.			
6.90 6.90-7.24	73				8,13/17,21,12 SPT(C) 50/185		5.80 (1.40) (1.40) (1.20) (1.20) (1.20) (1.30) (1.30)	Driller notes brown boulder CLAY. Recovery consists of slightly sandy gravelly CLAY with occasional sub-angular to subrounded gravel.			
8.40 8.40-8.85					6,9/9,14,12,13 SPT(C) N=48		8.40	Driller notes brown boulder CLAY, Recovery consists of brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded			
	42						(1.30)	cobles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
9.90					_		9.70	Extremely weak to medium strong coarsely crystalline massive orange white GRANITE	*****		
<b>Remarks</b> Groundwater	encounter	red at 4.0	0m.						Scale (approx)	Lo By	gged
									1:50 Figure N 8354-01	lo.	PM 3H-03

RELAND			1	W	igations Ire ww.gii.ie			Site Cornelscourt		B	orehole umber H-03
Machine : Da Flush : In	ando 2000 water	+144	Casing 20	Diamete Omm to 0 Omm to 1	6.00m	Ground	Level (mOD)	Client DBFL			b umber 4-01-19
Core Dia: HC Method :	ຊ mm		Locatio		15.9011	Dates	4/02/2019-	Engineer			neet
			72	2440.5 E	725871.9 N	ÓS	5/03/2019				2/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
9.90-10.09	40	22	19		7,15/25 SPT(C) 25/40 9,16/50			distinctly weathered. Distinctly weathered.		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	დია წარდებებით მებილებები დებით წარდებები ამინი დეგიდებით ინიკიდებია ის მიკადები ამინი დეგიდები ის მიკიდებია ის მიკადები დაფიის დაგიდები და მადივი დაგიდები დეგილი დაფიის დაგიდები დაგიდები დაგილიკი დაგილიკი დაგი ამიკადები დაგილიკი დაგილიკი დაგილიკი დაგილიკი დაგი ამიკადები დაგილიკი დაგილიკი დაგილიკი დაგილიკი დაგილიკი დაგი ამიკადები დაგილიკი დაგილიკი დაგილიკი დაგილიკი დაგილიკი და
11.40-11.84	29	21	19	6	SPT(C) 25*/140 N=50			Fracture set 1: 9.90m - 12.45m, Close to medium spaced at 0 - 20 degrees orientation stepped rough, tight to open, stained brown with quartz sand on fracture surface.		0 BAAO 0 0 - A 0 B BAAO 0 0 - A 0 B BAAO 0 0 - A 0 B	რილი წარეთვებებილი წარეთვები ერილი გარიფოკი კა თარი მისი ფირითი მიწირი ფირითი მიწირი გარი თარი მისი ფირითი მიწირი გარი ფირითი მიწი წარი მიწირი მიწირი მიწილი მიწილი მიწილი მი დაიხიიალი ფიზიდი მიწილი მიწილი მიწილი მიწილი თარი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მი მიწილი მიწილი მ მიწილი მიწილი მი მიწილი მიწილი მი მიწილი მიწილი მი მიწილი მიწილი მი მიწილი მიწილი მი მიწილი მიწილი მი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მიწილი მი
12.90									*****	Po 50 0'0 - 0 0	
13.50	100	64	57	4	-			Fracture set 1: From 12.45m - 13.50m, close to medium spaced at 0 - 20 degrees orientation, stepped rough, tight to open, stained brown.		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	r 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
14.40	100	17	17							90,000,009,009,009,009,000,000,000,000,	ლ წავებილი წავლიდ იკალილი დავილი კალი კალი კალი კალი იმ ვარი კალი თვი იკალი კალი კალი კალი კალი კალი იმ იფილი კალი თვი იკალი კალი კალი კალი კალი იმ იფილი კალი კალი კალი კალი კალი კალი კალი კ
15.90								Non intact from 14.4m to 15.90m. Complete at 15.90m		1 0 04 AG	
Remarks									Scale (approx) 1:50		pgged /
									Figure I		

GROUND		Grou	nd In		gations Ire	land	Ltd	Site Cornelscourt		Borehole Number BH-04
	water	+T44		Diamete Omm to 1		Ground	Level (mOD)	Client DBFL		Job Number 8354-01-1
Core Dia: H Method : R		d	Locatio		725894.8 N		4/02/2019- 4/03/2019	Engineer		Sheet 1/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend
	8							Driller notes brown silty CLAY with gravel from 0. 4.80m. Recovery consists of dark brown slightly slightly gravelly CLAY with occasional sub-angula subrounded cobbles. Fine to coarse sand with fin coarse sub-angular to subrounded gravel.	sandv	
2.40	33									
3.90	40			7	4,8/10,14,14,12			Driller notes black gravelly boulder CLAY. Recove consists of dark grey slightly sandy slightly grave with occasional sub-angular to subrounded cobbl coarse sand with fine to coarse sub-angular to su gravel.	lly CLAY les. Fine to	2010 001 001 001 001 001 001 001
5.40-5.83	33				SPT(C) 50/280					0,00,00,00,00,00,00,00,00,00,00,00,00,0
6.90 6.90-7.28	27				7,8/11,16,21,2 SPT(C) 50/230					0 0 0 0 0 0 0 0 0 0 0 0 0 0
8.40 8.40-8.85				5	3,5/5,8,7,10 SPT(C) N=30		8.40	Extremely weak to medium strong coarsely crysta massive orange white GRANITE. Partially weather unweathered.	alline ered to	·····
9.10	100	81	62					Fracture set 1: From 8.40m - 9.10m, close to m spaced at 0 - 20 degrees orientation, stepped r tight to open, clay smearing on fracture surface	ough,	
9.90							Ē	Fracture set 1: From 9.10 - 9.90m, close to mee		******
Remarks No groundwa	ater encou	ntered							Scale (approx)	Logged By
									1:50	PM
									Figure N 8354-01	<b>lo.</b> I-19.BH-04

		Grou	nd In		igations Ire vw.gii.ie	land	Ltd	Site Cornelscourt		Borehole Number BH-04
	water	+T44		Diamete Omm to 1	r	Ground	Level (mOD)	Client DBFL		<b>Job</b> <b>Number</b> 8354-01-19
Core Dia: H Method : R		d	Locatio		725894.8 N		/02/2019- /03/2019	Engineer		Sheet 2/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend S
10.90 11.40 11.75 12.90 13.00 13.70	100	46	40	5				<ul> <li>spaced at 10 - 30 degrees orientation, stepped rotight to open, stained brown.</li> <li>Fracture set 1: From 9.90m - 10.90m, close to me spaced at 10 - 30 degrees orientation, stepped rotight to open, stained brown.</li> <li>Fracture set 1: From 10.90m - 11.75m, close to medium spaced at 10 - 30 degrees orientation. stepped rough, tight to open, stained brown.</li> <li>Fracture set 1: From 11.75m - 12.90m, close to medium spaced at 30 - 40 degrees orientation, stepped rough, tight to open.</li> <li>Fracture set 1: From 12.90m - 13.70m, close to medium spaced at 30 - 40 degrees orientation, stepped rough, tight to open.</li> <li>Complete at 13.70m</li> </ul>	edium	
Remarks No groundwa	ater encou	ntered							Scale (approx) 1:50 Figure N 8354-01	PM Io.

Figure 1:         Invalue:         Control 5::0.30m         Description         Solution         Solution<	GROUND IRELAND	(	Grou	nd In		igations Ire vw.gii.ie	land	Ltd	Site Cornelscourt	Borehole Number BH-05		
Detection : Reducey Carry 0         Location - Control Court         Detect - Courter	Flush : In	water	+ T44	20	0mm to \$	5.80m	Ground	Level (mOD)		Job Number 8354-01-19		
Image: state in the state of the s			d			ırt	14		Engineer			
100-1.30         1.11 2.2.2 B*TC(17/150         1.01 B*TC(17/150         1.01 B*TC(17/150 <th>Depth (m)</th> <th>TCR</th> <th>SCR</th> <th>RQD</th> <th>FI</th> <th>Field Records</th> <th>Level (mOD)</th> <th>Depth (m) (Thickness)</th> <th>Description</th> <th>Legend</th>	Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend		
Inc. 1-30         Intelligence         Intelligence <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>(0.20)</td> <td>Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.</td> <td></td>								(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.			
100-1.30         BPT(C) 71/50         Entry 1.10         Firm more sightly analy analysis (LAV with occasion all costs)         Costs are and with fire to coarse and sub-angular to subrounded gravel.         Costs are and with fire to coarse and with fire to coarse and with fire to coarse and sub-angular to subrounded gravel.         Costs are and with fire to coarse and with fire to coarse and with fire to coarse and sub-angular to subrounded gravel.         Costs are and with fire to coarse and with fire to coarse and sub-angular to subrounded gravel.         Costs are and with fire to coarse and with fire to coarse and sub-angular to subrounded gravel.         Costs are angular to subroun								(0.90)	gravelly CLAY with concrete slab. Fine to coarse sand and			
2.09-2.45         3.224.4.3.3 SPT(G) N=14         (1.90)           3.00-3.45         6.78.3.13.11 SPT(G) N=42         3.00           3.00-3.45         6.778.3.13.11 SPT(G) N=42         3.00           4.00-4.32         10.10*14.20.16 SPT(G) SDT(7) SPT(G) SDT(7)         10.10*14.20.16 SPT(G) SDT(7)         10.10*14.20.16 SPT(G) SDT(7)         10.10*14.20.16 SPT(G) SDT(7)           5.00-5.33         10.10*14.20.16 SPT(G) SDT(7)         4.70         Very slift brown slightly sandy laminated CLAV with rare gravel and rate sub-angular to subrounded coblets. Fire to gravel angular to subrounded coblets. Fire to gravel ang	1.00-1.30 1.00					SPT(C) 7/150		1.10	sub-angular to subrounded cobbles. Fine to coarse sand	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
3.00-3.45         3.00         SPT(C) N=42         5.00         Very stiff brown sliphity sandy sliphity gravely CLAY with 2.22         Second sub-angular to subrounded gravely CLAY with 2.22           4.00-4.32         10.10/14.20.16         SPT(C) S0/170         10.10/14.20.16         10.10/1	2.00-2.45 2.00					SPT(C) N=14		Ē				
5.00-5.33       Image: Stripping of the stripping o	3.00-3.45 3.00				SPT(C) N=42			occasional sub-angular to subrounded cobbles. Sand is	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
5:00-5.33 3:00       Image: SepTiC) 5:0/180 B       Image: SepTiC) 5:0/180 B<	4.00-4.32 4.00					SPT(C) 50/170				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
5.90       6.80m, rose to store solver to store to any solver to store coarsely crystalline orange greyish solver to unweathered. Quartz sand on fracture surface.       Medium strong to strong coarsely crystalline orange greyish white Granite. Partially weathered to unweathered. Quartz sand on fracture surface.         3.90       100       45       30       8         100       45       30       8         100       45       30       8         100       45       30       8         100       100       96       4         100       100       96       4         100       100       96       4         100       90       90       6         8.40       100       90       90         100       90       90       6         9.90       9.90       6       9.90         8.40       100       90       90       6         9.90       9.90       6       1.50       Medium strong to strong coarsely crystalline orange greyish white Granite. Partially weathered to unweathered. Quartz sand on fracture surface.       One fracture set 1: Close to medium space at 30.45 degrees orientation, planar rough, tight to open, stained brown.         9.90       9.90       6       9.90       9.90       1.50       PM </td <td>5.00-5.33 5.00</td> <td></td> <td></td> <td></td> <td></td> <td>SPT(C) 50/180</td> <td></td> <td>(1.10)</td> <td>gravel and rare sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded</td> <td></td>	5.00-5.33 5.00					SPT(C) 50/180		(1.10)	gravel and rare sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded			
9.90 9.90 9.90 9.90 9.90 9.90 9.90 9.90	5.90 5.80					5.80m, rose to 5.50m in 20 mins.		E	white Granite. Partially weathered to unweathered . Quartz sand on fracture surface.	<u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0</u> <u>0,0,0,0,0</u> <u>0,0,0,0,0,0 <u>0,0,0,0,0,0 <u>0,0,0,0,0,0,</u></u></u>		
9.90 9.90 9.90 9.90 9.90 9.90 9.90 9.90		100	45	30	8			(1.10)	Obstruction 5.8m onto granite.	*****		
9.90 9.90 9.90 9.90 9.90 9.90 9.90 9.90	6.90					_		6.90	white Granite. Partially weathered to unweathered . Quartz sand on fracture surface.	*****		
9.90 9.90 9.90 9.90 9.90 9.90 9.90 9.90		100	100	96	4			(1.50)	spaced at 30 - 40 degrees orientation, planar rough,	*****		
9.90 9.90 9.90 9.90 9.90 9.90 9.90 9.90	8.40					-		8.40	white Granite. Partially weathered to unweathered . Quartz sand on fracture surface.	*****		
Remarks     Scale (approx)       Groundwater encountered at 5.80m.     1:50		100	90	90	6			(1.50)	spaced at 30 - 45 degrees orientation, planar rough to	****** ****** ****** ****** ****** *****		
Groundwater encountered at 5.80m. 1:50 PM	9.90					-		9.90		* * * * * * * * * * * * * * * * * * * *		
1:50 PM	Remarks Groundwate	r encounte	red at 5.8	0m.					Scale (approx)	Logged By		
										-		
8354-01-19.BH-05									Figure N	No.		

				WW	gations Ire /w.gii.ie			Cornelscourt	BH-	
lush : In	ando 2000 water	+ 144	20	Diamete 00mm to 5 00mm to 1	.80m	Ground	Level (mOD)	Client DBFL	Job Numl 8354-0	
ore Dia: H lethod :R	Q mm otary Corec	1	Locatio Co	o <b>n</b> ornelscou	ť		4/02/2019- 7/03/2019	Engineer	Shee 2/	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legen	d
0.80	100	82	82	5				Medium strong to strong coarsely crystalline orange greyis white Granite. Partially weathered to unweathered . Quartz sand on fracture surface. One fracture set 1: Close to medium spaced at 30 - 40 degrees orientation, planar rough, tight to open, stained brown. One fracture set Fracture set 1: Close to medium spaced at 20 - 30 degrees orientation, planar rough to smooth, tight to open, stained brown. Complete at 10.80m		•
Remarks	<u> </u>		1	1			<u> </u>	Scale (appro	k) Logg By	
								1:50	PM	1
								Figur	<b>No.</b> 01-19.BH	

Machine : D Flush : In Core Dia : H	water	+ T44	20	Diamete Omm to 4 Omm to 1	4.60m	Ground	Level (mOD)	Client DBFL	Job Numbe 8354-01-
Method : R		d	Locatio Co	<b>n</b> rnelscou	rt		3/02/2019- 5/03/2019	Engineer	Sheet 1/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
1.00-1.30 1.00					2,2/2,3,3,1 SPT(C) 9/150 B		(0.20) 0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets. Firm light brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.	
2.00-2.45 2.00					2,4/2,3,3,3 SPT(C) N=11 B		2.00	Firm light brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.	0 0 0 0 0 0 0 0 0 0 0 0 0 0
3.00-3.45 3.00					3,4/4,4,5,6 SPT(C) N=19 B		(1.80) (1.80) (0.80) (0.80) (0.80) (1.20) (1.20) (0.60) (0.60) (0.60)	Stiff dark grey slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel.	00 00 00 00 00 00 00 00 00 00 00 00 00
4.00-4.44 4.00					8,16/14,12,14,10 SPT(C) 50/285 B		4.00	Very stiff dark grey slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel.	0 0 0 0
4.50	33				Water strike(1) at 4.50m, rose to 4.00m in 20 mins.		4.60	Driller notes Silt Gravel and Clay. Recovery consists of greyish brown slightly sandy slightly gravelly CLAY with occasional angular to sub-angular cobbles. Obstruction 4.6m onto possible granite - no recovery.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5.40 5.40-5.81					4,4/7,13,21,9 SPT(C) 50/255		5.70	Very weak to weak coarsely crystalline orange white	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5.00	80	30	30	8			(1.20)	GRANITE partially weathered with quartz bands and quartz sand on fracture surfaces. 5.70m - 6.0m non intact.	
3.90	80	70	59	9	_		5.70 (1.20) (1.20) (1.20) (1.50) (1.50) (1.50)	Very weak to weak coarsely crystalline orange white GRANITE partially weathered quartz sand on fracture surfaces. Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.	
<b>7.90</b>				1	-			Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.	*****
.40				4			8.40	Very weak to weak coarsely crystalline orange white GRANITE partially weathered. Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.	*****
.00 .90	86	21	16	4			(1.50)	Non intact.	· · · · · · · · · · · · · · · · · · ·
Remarks							<u>⊨</u> 9.30	Scale	Loager
Groundwate		to possible	e granite -	no reco	very.			(approx)	Logged By

	e : Dando 2000 + T44 Cas : In water a: HQ mm : Rotary Cored		WW	gations Ire /w.gii.ie			Cornelscourt		Numbe	
			20	Diameter Omm to 4	.60m	Ground	Level (mOD)	Client DBFL		Job Numbe 8354-01-
Core Dia: H	Q mm			0mm to 1	1.10m					
lethod : R	otary Corec	i	Locatio Co	<b>n</b> rnelscour	t		8/02/2019- 6/03/2019	Engineer		Sheet 2/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend
0.60 1.10	100	53	53					Very weak to weak coarsely crystalline orange whit GRANITE partially weathered. Fracture set 1: Close to medium spaced at 30 - 4 degrees, stepped rough, tight to open, stained bro Complete at 11.10m	5 own. 5	
Remarks	. I		1				1		Scale (approx)	Logge By
									1:50	PM
								_		lo.

Machine : Da Flush : In	ando 2000 water	+ T44	<b>Casing</b> 20 10 = t	Diamete Omm to 3 Omm to 3	<b>vw.gii.ie</b> <sup>3.70m</sup> 11.40m	Ground	Level (mOD)	Cornelscourt Client DBFL		Job	nber
Core Dia: Ho		d	Locatio		ırt		/02/2019- 7/03/2019	Engineer		She	eet 1/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00					-		(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.			
							(0.80)	Soft to firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
1.00-1.30 1.00					1,1/2,1,1,1 SPT(C) 5/150 B		1.00	Firm to stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse	<u>, , , , , , , , , , , , , , , , , , , </u>	<b>▼</b> 1	
					1,1/2,3,3,5		=	sub-angular to subrounded gravel.	0.0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
2.00-2.45 2.00					SPT(C) N=13 B		(2.00)		<u>, , , , , , , , , , , , , , , , , , , </u>		
					30/50 Water strike(1) at 2.70m, rose to 1.20m in 20 mins.		3.00	Very stiff brown sightly sandy slightly gravelly	0 <u>0</u> 0 0 <u>0</u> 0 0 <u>0</u> 0	<b>⊻</b> 1	
3.00-3.24 3.00 3.50					SPT(C) 30*/145 50/95 B		(0.70)	CLÁY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.	0 0 0 0 0 0 0 0 0 0 0		
3.90	50						(0.70) (0.70) (0.20) (0.20) 3.90	Driller notes brown Silty Clay with Gravel. Recovery consists of brown slightly silty slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Obstruction onto possible granite rock at 3.70m - no recovery.	× • • • • • • • • • • • • • • • • • • •		
	20						(1.50)	Driller notes brown Silty Clay with Gravel. Recovery consists of brown slightly silty slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles.	× · · · · · · · · · · · · · · · · · · ·		
5.40 5.40-5.85					3,4/4,6,5,8 SPT(C) N=23		5.40	Driller notes brown Silty Clay with Gravel. Recovery consists of brown slightly silty slightly sandy slightly gravelly CLAY with occasional	× 0 · · · × 0 · · · × · · · · · · · · · · · · · · · ·		
	56	11	6				(0.90)	sub-ángular to subrounded cobbles.	× 0 · · · × 0		2000,000,000,000,000 2000,000,000,000,00
							6.30 (0.60)	Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface	*****	100 000 000 00 000 000 000 000 0000 00	50 00 00 00 00 00 00 00 00 00 00 00 00 0
6.90 7.20					-		6.90	Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface Non intact from 5.40m - 7.20m		90,00 540,00 700,000 90,000 10 90,000 0 0 0 0 0 90,00 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90	2000 80 00 00 00 00 00 00 2000 00 00 00 00 00 2000 00 00 00 00 2000 00 00 00 00 2000 00 00 00 00 2000 00 00 00 00 00 2000 00 00 00 00 00 00 2000 00 00 00 00 00 00 2000 00 00 00 00 00 00 00 00 2000 00 00 00 00 00 00 00 00 00 00 00 2000 00 00 00 00 00 00 00 00 00 00 00 00
7.90	100	32	24	6	-		(0.90) 6.30 (0.60) (0.60) (1.50) (1.50)	Fracture set 1: Close to medium spaced at 0 - 20 degrees, stepped rough, tight to open,	******	240,00 0 00400 0 0000 00 0 0 0 0 0 0 0000 0 0	00000000000000000000000000000000000000
3.40				N.I.			8.40	stained brown.			00000000000000000000000000000000000000
3.75				6	-			whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface Non intact from 7.20m - 8.75m.		0 004000000000000000000000000000000000	00000000000000000000000000000000000000
9.35	100	44	40		-		(1.50)	Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.	*****	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2000 50 00 00 00 00 00 00 00 2000 00 00 00 00 00 00 8 000 000 000 000
9.90					-		9.90		******	0000 00000	
Remarks Groundwater No recovery	r at 2.70m.								Scale (approx)	Log By	ged
									1:50 Figure N 8354-01	0.	M

Ground Investigations Ir www.gii.ie	eland Ltd	Site Cornelscourt		Borehole Number BH-07
Machine : Dando 2000 + T44     Casing Diameter 200mm to 3.70m 100mm to 11.40m = to	Ground Level (mOD)	Client DBFL		Job Number 8354-01-19
Core Dia: HQ mm Method : Rotary Cored Cornelscourt	Dates 11/02/2019- 07/03/2019	Engineer		Sheet 2/2
Depth (m) TCR SCR RQD FI Field Records	Level Depth (mOD) (m) (Thickness)	Description	Legend	Nater Kater
		Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface Non intact from 9.35m - 9.90m. Fracture set 1: Close to medium spaced at 30-40 degrees, stepped rough, tight to open, stained brown. Complete at 11.40m		
Remarks			Scale (approx)	Logged By
		-	1:50 Figure N 8354-01	PM <b>lo.</b> -19.BH-07

	water	+T44	20	Diamete Omm to 2 Omm to 2	2.00m	Ground	Level (mOD)	Client DBFL		N	ob umber 54-01-1
Core Dia:H Method :R		đ	Locatio Co	<b>n</b> ornelscou	ırt		5/02/2019- 3/02/2019	Engineer		Sł	neet 1/1
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Insti
1.00-1.30 1.00 2.00-2.45 3.00 3.40 3.90 5.40	88 100 82 82	51 73 58 24	51 64 53	5 10 5	1,2/1,1,1,1 SPT(C) 4/150 B 25/50 SPT(C) N=50			Brown slightly sandy slightly gravelly TOPSOIL.         Soft brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.         Firm to stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Sand is fine to coarse and gravel is fine to coarse and sub-angular to subrounded         Very stiff CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and medium to coarse sub-angular to subrounded gravel.         Obstruction: Possible granite boulder or rock at 2.0m         No recovery at 2.0m.         Extremely weak to medium strong coarsely crystalline massive orange white GRANITE. Partially weathered to unweathered.         Fracture set 1: From 3.40m - 3.90m, close to medium spaced at 30 - 45 degrees orientation, stepped rough, tight to open, stained brown.         Fracture set 1: From 3.40m - 6.40m, close to medium spaced at 50 - 60 degrees orientation, glanar rough, tight to open.         Fracture set 1: From 5.40m - 6.90m, medium spaced at 50 - 65 degrees orientation, glanar rough, tight to open.			
.40								Fracture set 1: From 6.90 - 8.40m, close to medium spaced at 70 degrees, planar smooth, tight to open. Complete at 8.40m			
Remarks o groundwa o recovery	ater encour	ntered.	<u> </u>		1		<u> </u>	1	Scale (approx)	Lo By	ogge y

	(	Grou	nd In		igations Ire ww.gii.ie	land	Ltd	Site Cornelscourt	Borehole Number BH-09
Machine : Da Flush : In Core Dia: He	water	+ T 44	20	Diamete Omm to 2 Omm to 2	2.90m	Ground	Level (mOD)	Client DBFL	Job Number 8354-01-1
Method : R		1	Locatio Co	n ornelscou	ırt		2/02/2019- 7/03/2019	Engineer	<b>Sheet</b> 1/1
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
1.00-1.30 1.00					2,3/3,4,4,3 SPT(C) 14/150 B		(0.40) 0.40 (0.40) (1.60)	Brown slightly sandy slightly gravelly TOPSOIL. Firm to stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles and fine to coarse sub-angular to subrounded gravel.	
2.00-2.45 2.00					2,4/5,5,4,4 SPT(C) N=18 B		(0.40) 0.40 (1.60) (1.60) (0.90) (0.90) (0.90) (1.30) (1.30)	Very stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.	
2.90	100	78	72	7	-		2.90 (1.30)	Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered from 2.90m - 4.20m. Obstruction at 2.9m onto possible granite rock. No recovery.	······
90	100	100	100	8	-		4.20	Fracture set 1: From 2.90m - 3.90m, medium spaced at 30 - 40 degrees orientation, stepped rough, tight to open. Medium strong to strong coarsely crystalline whitish grey GRANITE. Unweathered.	
.40	93	93	93		-		F	Medium strong orange grey coarsely crystalline GRANITE. Partially weathered to unweathered. Fracture set 1: From 3.90m - 6.35m, close to medium spaced at 0 - 20 degrees orientation, stepped rough,	······
.90	73	73	73	4				tight to open.	
3.00							6.10 (1.90)	Fracture set 1: From 6.35m - 8.0m, close to medium spaced at 40 - 50 degrees orientation, planar rough to smooth, tight to open, quartz bands. Complete at 8.00m	
Remarks Obstruction a	at 2.9m pos at 2.9m	sible gra	nite				<u>F</u>	Scale (approx)	Logged By
1000vei y	at <b>2</b> .0111							1:50 <b>Figure</b> 8354-0	PM <b>No.</b> 11-19.BH-09

net is water to be is water to be is the origination of the isolated isolated in a base of the isolated is	<b>hine</b> : Da	ndo 2000	+ T44	Casing	WV Diamete	vw.gii.ie	Ground	Level (mOD)	Cornelscourt	BH-1
International method         Description         Description <thdescription< t<="" th=""><th>s<b>h</b> : In v</th><th>water</th><th></th><th></th><th></th><th></th><th></th><th>. ,</th><th></th><th>Numbe 8354-01-</th></thdescription<>	s <b>h</b> : In v	water						. ,		Numbe 8354-01-
Itematical Ruley Correl         Correlation         Correlation         111           Depth         TCR         SCR         ROD         PI         Field Records         MOD         Depth         Description         Legend           0         100         1         1         1         100         1         1         100         1         1         100         1         1         100         1         1         100         1         1         1         100         1<	e Dia: HC	) mm				5.9011	Datas		Engineer	
0-14.5         B         0.040         Brown slighty sandy slighty gravely COPSOL         Second slighty sandy slighty gravely CAV with rare side and and the bocase sub-angular to subrounded some side and and the bocase sub-angular to subrounded some side and and the bocase sub-angular to subrounded some sub-ang	hod : Ro	tary Corec	Ł			ırt	12		Engineer	1/1
0       Image: Struction onto granite rock       Image: Struction onto granite rock       Fracture set 1: From 3.90m - 5.40m, close to medium spaced at 30 - 40 degrees orientation, planar rough to smooth, tight to open.         00       Image: Struction onto granite rock       Fracture set 1: From 5.40m to 6.90m, close to medium spaced at 30 - 40 degrees orientation, planar rough to smooth, tight to open.         00       Image: Struction onto granite rock       Fracture set 1: From 5.40m to 6.90m, close to medium spaced at 30 - 40 degrees orientation, planar rough to smooth, tight to open.         00       Image: Struction onto granite rock       Image: Struction onto granite rock	epth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
0       Image: Struction onto granite rock       Image: Struction onto granite rock       Fracture set 1: From 3.90m - 5.40m, close to medium spaced at 30 - 40 degrees orientation, planar rough to smooth, tight to open.         00       Image: Struction onto granite rock       Fracture set 1: From 5.40m to 6.90m, close to medium spaced at 30 - 40 degrees orientation, planar rough to smooth, tight to open.         00       Image: Struction onto granite rock       Fracture set 1: From 5.40m to 6.90m, close to medium spaced at 30 - 40 degrees orientation, planar rough to smooth, tight to open.         00       Image: Struction onto granite rock       Image: Struction onto granite rock	-2.45	100	45	45	12	Water strike(1) at 0.90m. SPT(C) N=11 B 1,1/2,2,2,1 SPT(C) N=7 B			Soft to firm light brown slightly sandy slightly gravelly CLAY with rare sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel. Firm brown slightly sandy slightly gravelly CLAY with rare sub angular cobbles. Obstruction at 2.6m onto possible granite rock. Firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel. Weak to medium strong coarsely crystalline orange white GRANITE. Partially weathered to unweathered.	
emarks struction onto granite rock 1:50 PM									spaced at 30 - 40 degrees orientation, planar rough, tight to open, stained brown. Fracture set 1: From 3.90m - 5.40m, close to medium spaced at 30 - 40 degrees orientation, planar rough to	
emarks struction onto granite rock 1:50 PM									spaced at 30 - 45 degrees orientation, planar rough to smooth, tight to open.	
		nto granite	e rock				<u> </u>		Scale (approx	Logged By
									1:50	PM
Eigure No										

			nd In		igations Ire vw.gii.ie	land	Ltd	Site Cornelscourt		Ν	orehole umber 8 <b>H-11</b>
	water	+ T 44	20	Diamete Omm to 3 Omm to 8	3.20m	Ground	l Level (mOD)	Client DBFL		N	ob umber 54-01-1
Core Dia: H Method : R		d	Locatio Co	n ornelscou	rt		2/02/2019- 1/03/2019	Engineer		S	<b>heet</b> 1/1
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00					B 1,1/1,1,2,2 SPT(C) 6/150		(0.20) 0.20 (0.50) 0.70 (1.30)	Brown slightly sandy slightly gravelly TOPSOIL. Soft to firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel. Firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.	ଜନ୍ମ କରୁ	<b>▼</b> 1	
2.00-2.45 2.00 3.00					2,3/3,2,2,2 SPT(C) N=9 B 2,2/50 Water strike(1) at		2.00 (1.20)	Very stiff grey slightly sandy slightly gravelly CLA with occasional sub-rounded cobbles. Gravel is fine to coarse and angular to sub angular.	<u>ଜୁ</u> ଚର୍ଚ୍ଚ ଚର୍ଚ୍ଚ ଚର୍ଚ୍ଚ ଅଟୁଟ ଜୁ ସଟୁଟ ଜୁ ବର୍ଚ୍ଚ ୧୨.୨.୭.୧ ଜୁ କୁ ବର୍ଦ୍ଦ ନୁ ବର୍ଦ୍ଦ ୧୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.୨.	<b>∑</b> 1	
3.00-3.27 3.00 3.20 3.50 3.84	100	30	25	5	3.00m, rose to 1.50m in 20 mins. SPT(C) 50/115 B B			Greyish brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel. Obstruction at 3.2m onto possible granite rock.			
3.90	100	74	53	10			(2.40)	Weak to medium strong coarsely crystalline orange white GRANITE. Partially weathered to unweathered. Non intact from from 3.40m - 3.50m. Fracture set 1: From 3.50m - 3.84m, medium spaced at 30 - 45 degrees orientation, stepped rough, tight to open. Non intact from 3.84m - 3.90m.			
5.40 5.80				5	-		5.80	Fracture set 1: From 3.90m - 5.40m, close to medium spaced at 60 - 70 degrees orientation, planar rough. tight to open, stained brown.	******		
5.60	100	15	15	12			(1.10)	Extremely weak to weak coarsely crystalline pinkish brown GRANITE. Distinctly weathered. Fracture set 1: From 5.40m - 5.80m, close to medium spaced at 40 - 50 degrees orientation, planar smooth, tight to open, stained brown, quartz sand on fracture surfaces.			
6.90	100	26	18				6.90 (1.50)	Weak to medium strong coarsely crystalline pinkish brown GRANITE. Partially weathered to unweathered. Non intact from 5.80m - 6.90.			
8.40								Fracture set 1: From 6.90m - 8.40m, close to medium spaced at 50 - 60 degrees orientation, planar rough to smooth, tight to open, quartz sand on fracture surfaces. Complete at 8.40m			
Remarks Groundwate Obstruction			)m.	<u> </u>	1	<u> </u>	<u> </u>	1	Scale (approx)	La B	ogged Y
	J								1:50		PM
									Figure N 8354-01		.BH-11

#### Cornelscourt – Rotary Core Photographs



		ROUND VESTIGATIONS RELAND	art #14	Cray Scale #14	
ALL MANY	Client: Site: Borehole Box No:	DBFL cornelscourt Dub ref: BH-02	Depth: From	8 35 4-01-19 04/3/19 12 3 to 15.2	-
A ANSA					

Client: Site: Borehole i	DBFL cornelscourt Dublin ref: BH-02	Job Ref:       8354-01-19         Date:       04/3/19         Depth: From       15.2       17	
Box No:	3 of <u>-</u>	59 10 10 10 10 10 10 10 10 10 10 10 10 10	
	IF4		



Client: Site:	DBFL Cornelsc		Job Ref: Date:	8354-0	/ 19	
Borehole Box No:	2 0	of 3	Depth: From		to 13.5 m	100
cm 10		9.9	50 60			111
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200	Client:	DB	FLOO		Job Ref:	8354-01	- 19
- 2	Site:	cori	nelscou,	ne Dublin	Date:	04/3/	19
1	Borehole	ref:	BH-0	4	Depth: From	0.0 to	9.(
	Box No:	1	of	3			1.4
	cm 10	20	30	40	50 60	70 80	90 100
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	1000		5-6	-	Sector 1	6.9	
ALC: NO	1900			A. C.		A CAR	
		84		all states	A reason of the second		

Client: Site: Borehole	cor	FL nelscou BH-C	re Dublin	Job Ref: Date: Depth: From	041	+-01- '3/1' to	9
Box No:	20	of	3.	50 60	70	80	90 10
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		esse a	a to a				
	The loss of						



IN IN	ROU	ONS	Colour Chart #1	4		ey Scale #14	
Client: Site:		L nelscou	rc Dublin	Job Ref: Date:	8354-	3/19	
Borehole Box No:	ref:	<i>BH</i> - of 30	2	Depth: From		to 8.9	100
					24		6.9n
				2.6			
				0.4		31	8



	A IN		TIONS	Colour Chart #1	4		rey Scale #14	
1	Client: Site: Borehole	cor	BH-C	Doblin	Job Ref: Date: Depth: From	8354. 061 4.5		
	Box No:	20	of 30			70		100
					DÌ		6.9m	
	11					U	T.J.	

		GROUND IVESTIGATIONS RELAND	Colour Chart #14		Grey Sca	ale #14.	
	Client:	DBFL		Job Ref:	8354-0	1-19	
	Site:	cornelsco		Date:	06/3/	19	
	Borehole	ref: BH-0	26	Depth: From	8.4 t	o 11.1	
	Box No:	2 of	2				
7	cm <b>10</b>	20 30	40 :	50 60	70 80	90	100
		2.4					
	12CT	A DIM		P ADV S	Carry	Test In	
		9.9	The local and a		a second		
	1 . 3						
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			(DY)	The second			3.
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Client: DBFL Site: Cornelscourt Dublin Borehole ref: $BH = 07$ Box No: 1 of 2 Cm 10 20 30 40 50 60 70 80 90 100 31						at i san
Chent.       Decree/scourt       Dublin       Date:       04/3/19         Borehole ref:       BH-07       Depth: From       3.50 to       8.4         Box No:       1 of       2         cm       10       20       30       40       50       60       70       80       90       100			Grey Scale	No ac - M	ESTIGATIONS	G C INV
Site:     Date.       Borehole ref:     BH = 07       Depth: From     3.50 to       Box No:     1 of       10     20       30     40       50     50       70     80       90     100	No.			Job Ref:	DBFL	Client:
Bor No: 1 of 2 cm 10 20 30 40 50 60 70 80 90 100 31 54	23			Date:	cornelscourt Dublin	Site:
Box No: 1 of 2 cm 10 20 30 40 50 60 70 80 90 100 31 54 54 54 54 54 54 54 54 54 54		8.4	3.50 to	Depth: From	ef: BH-07	Borehole
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		Charl #14	Crey Scale #14
Client: Site: Borebole	DBFL Cornelscourt Dul ref: BH-08	Job Ref: Date: Depth: From	8354-01-19 28/2/19 6.1 to 8.4
Box No:	2 of 2	50 60	*
		6.9m	NA V
	and the second		A CARE

	AI	GROUND IVESTIGATIONS RELAND	Colour Chart #14				
	Client:	DBFL		Job Ref:	8354-01		
	Site:		scourt Dublin	Date:	6131		
	Borehole	ref: B	H - 0 9	Depth: From	2.9 to	5.95	
	Box No:	al.	of 2				
	cm 10		30 40	50 60	70 80	90 100	A.
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	New State				Cash Cash		
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		GROU IVESTIGA RELA		Colour Chart #1		a a a a a a a a a a a a a a a a a a a	ey Scale #14		
	Client:	DB	FL		Job Ref:	8354-	-01-19		
	Site:	cor	nelscou	re Dublin	Date:	711	3/19		
	Borehole	ref:	BH-	10	Depth: From	2.7	to 5.4	Se l	
	Box No:	1	of	2					
	cm 10	20	30	40	50 60	70	80 90	100	and the
1		The Party							
-	122-54	1	n setting	TT	The Asta				L. B
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	Contraction of the second	1	Des E			Carlo and			1
	C. Contraction			10.00 (25)	-2010			5.4	







# **APPENDIX 7** – Plate Test Records

Applied Load	Gauge settlement
0	0.000
39	-2.165
78	-3.975
156	-6.355
0	
78	
156	
0	

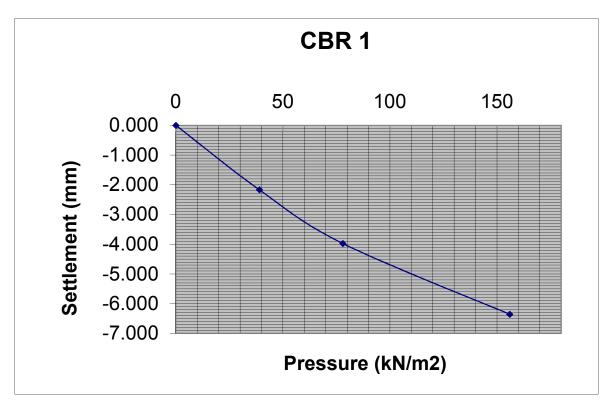


LOCATIONCornelscourtCONTRACT NO.8354-01-19DATE23/01/2019CLIENTDBFLPLATE DIAMETER457mmTEST NO.Test 1

DEPTH NOTES SAMPLES

MATERIAL

Light brown slightly sandy slightly gravelly CLAY 0.4 Plate failed to stop moving up reloading



Modulus of subgrade reaction, K (Initial) =	11.73 MN/m2/m	ı
Modulus of subgrade reaction, K (Reload) =	#DIV/0! MN/m2/m	ı
Equivalent CBR (initial) in accordance with HD25/04 volume7 section	n2 = 06	so %

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = 0.69 % Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **#DIV/0!** %

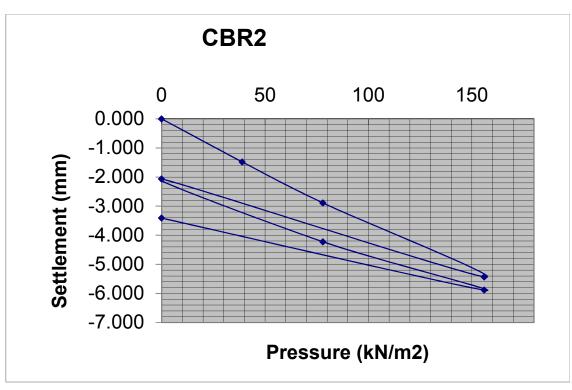
#### Cornelscourt

Applied Load	Gauge settlement
0	0.000
39	-1.48
78	-2.89
156	-5.43
0	-2.065
78	-4.225
156	-5.885
0	-3.41



LOCATION Cornelscourt MATERIAL CONTRACT NO. 8354-01-19 DATE 23/01/2019 DEPTH CLIENT DBFL PLATE DIAMETER 457mm NOTES TEST NO. Test 2 SAMPLES

Light brown slightly sandy slightly gravelly CLAY 0.5



Modulus of subgrade reaction, K (Initial) =	16.13 MN/m2/m
Modulus of subgrade reaction, K (Reload) =	21.58 MN/m2/m
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 =	· 1.19 %

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = 1.98 %

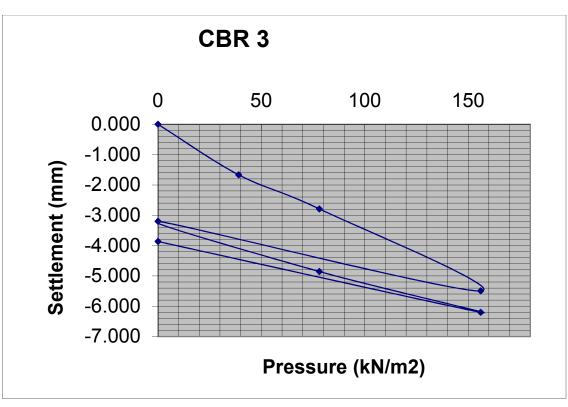
Applied Load	Gauge settlement
0	0.000
39	-1.665
78	-2.79
156	-5.495
0	-3.2
78	-4.855
156	-6.2
0	-3.865



3.14 %

LOCATION CONTRACT NO.	Cornelscourt 8354-01-19	MATERIAL
DATE	23/01/2019	
CLIENT	DBFL	DEPTH
PLATE DIAMETER	457mm	NOTES
TEST NO.	Test 3	SAMPLES

Light brown slightly sandy slightly gravelly CLAY 0.55



Modulus of subgrade reaction, K (Initial) =	16.71	MN/m2/m
Modulus of subgrade reaction, K (Reload) =	28.17	MN/m2/m
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 =	:	1.27 %

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 =

Applied Load	Gauge settlement
0	0.000
39	-0.6
78	-1.105
156	-1.845
0	-0.62
78	-1.665
156	-1.95
0	-0.725

Cornelscourt

8354-01-19

23/01/2019

DBFL

457mm

LOCATION

DATE

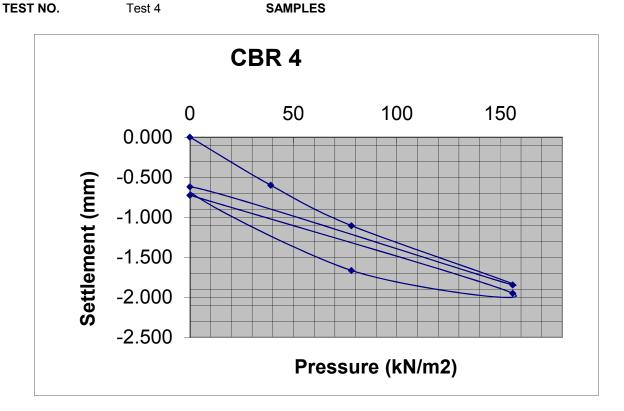
CLIENT

CONTRACT NO.

PLATE DIAMETER



MADE GROUND: Bluish grey sandy slightly clayey angular to sub-angular fine to coarse Gravel



MATERIAL

DEPTH

NOTES

Modulus of subgrade reaction, K (Initial) =	42.19 MN/m2/m
Modulus of subgrade reaction, K (Reload) =	44.62 MN/m2/m
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 =	6.32 %
Equivalent CBR(reload)in accordance with HD25/94 volume7 section2	= 6.96 %

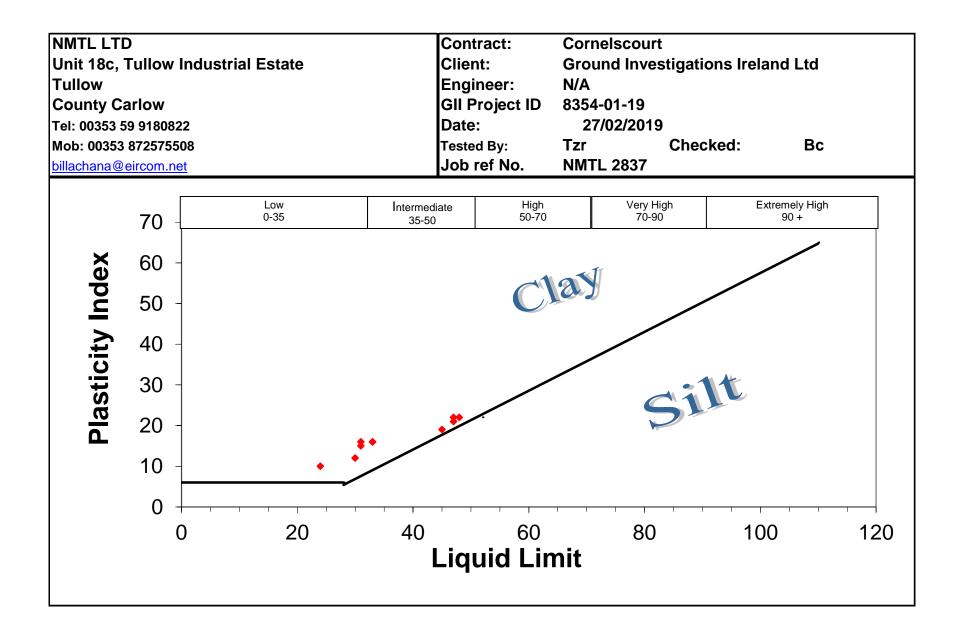
# **APPENDIX 8** – Laboratory Testing Records

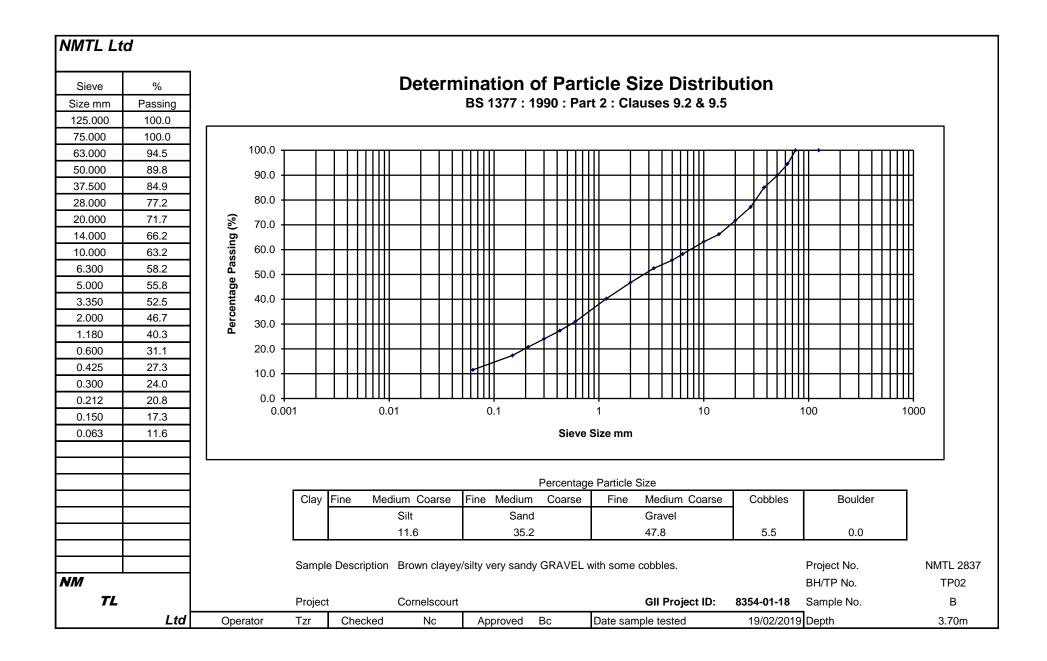
# **APPENDIX 8.1** – Geotechnical Laboratory Records

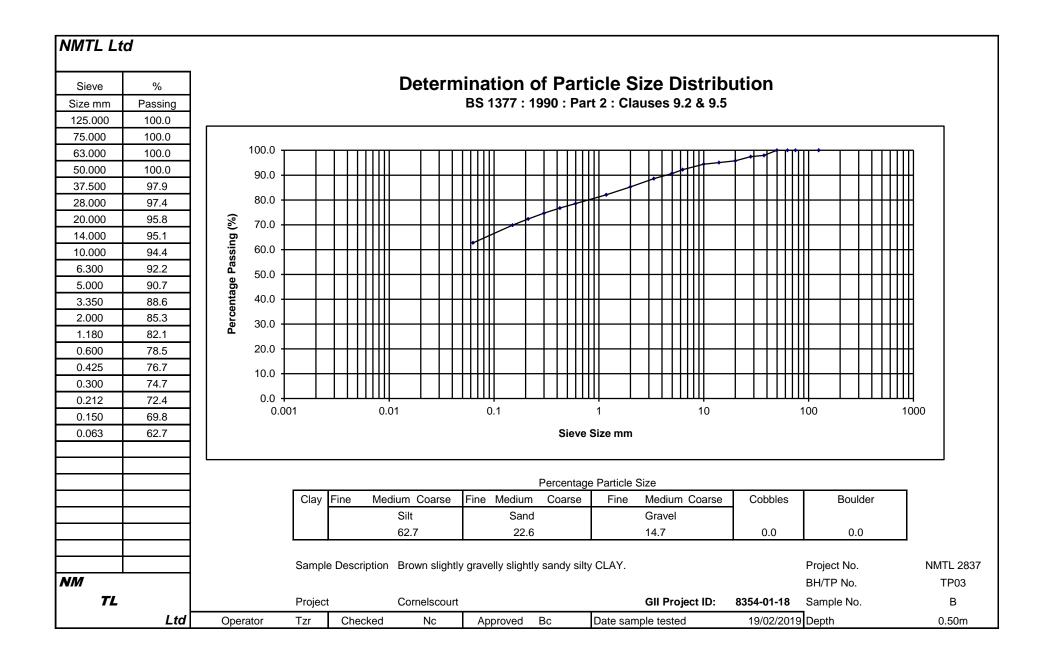
## National Materials Testing Laboratory Ltd.

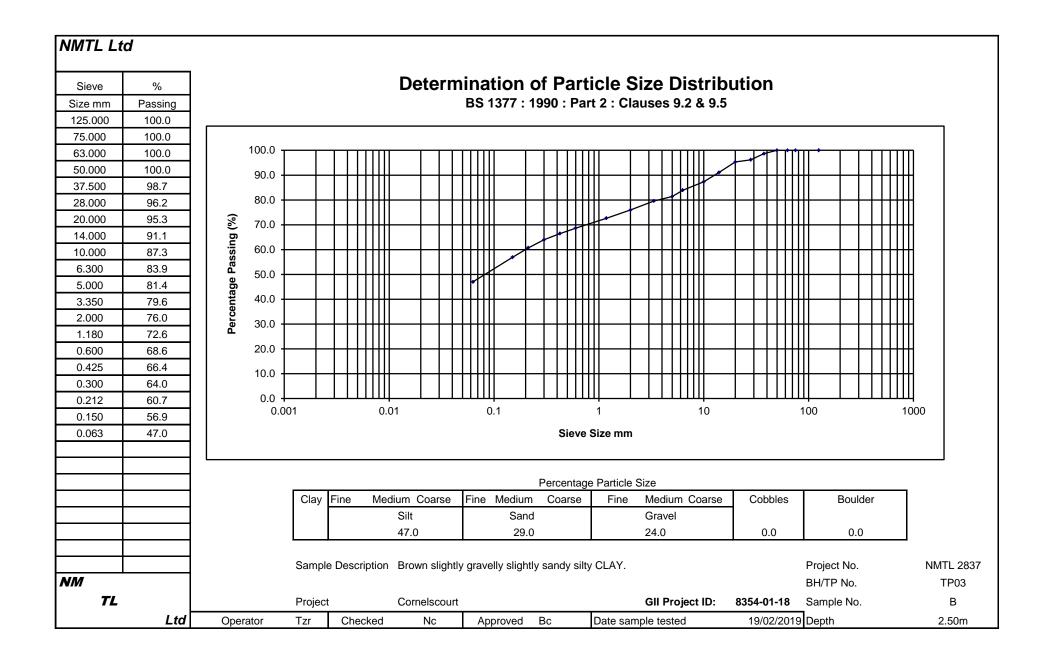
				Particle	Index Properties Bulk Cell		Cell	Undrained Tria	xial Tests	Lab				
BH/TP	Depth	sample	Moisture	Density	<425um	LL	PL	PI	Density	Presssure	Compressive	Strain at	Vane	Remarks
No	m	No.	%	Mg/m3	%	%	%	%	Mg/m3	kPa	Stress kPa	Failure %	kPa	
TP02	3.7	В	10.5		27.3	24	14	10						
TP03	0.50	В	22.4		76.7	48	26	22						
TP03	2.50	В	16.2		66.4	31	15	16						
TP06	2.90	В	13.9		46.9	31	16	15						
TP08	0.50	В	22.6		75.0	47	25	22						
TP13	0.50	В	23.7		77.7	47	26	21						
TP13	2.50	В	14.6		56.5	33	17	16						
TP14	1.50	В	13.4		50.1	33	17	16						
TP17	0.50	В	23.5		78.4	45	26	19						
TP21	1.00	В	14.0		41.4	30	18	12						
MTL		Notes :									Job ref No.	NMTL 2837	GII Project ID:	8354-01-19
	]		1. All BS te	ests carried	l out using p	oreferred (	definitive) r	nethod ur	nless otherw	vise stated.	Location	Cornelsco	urt	

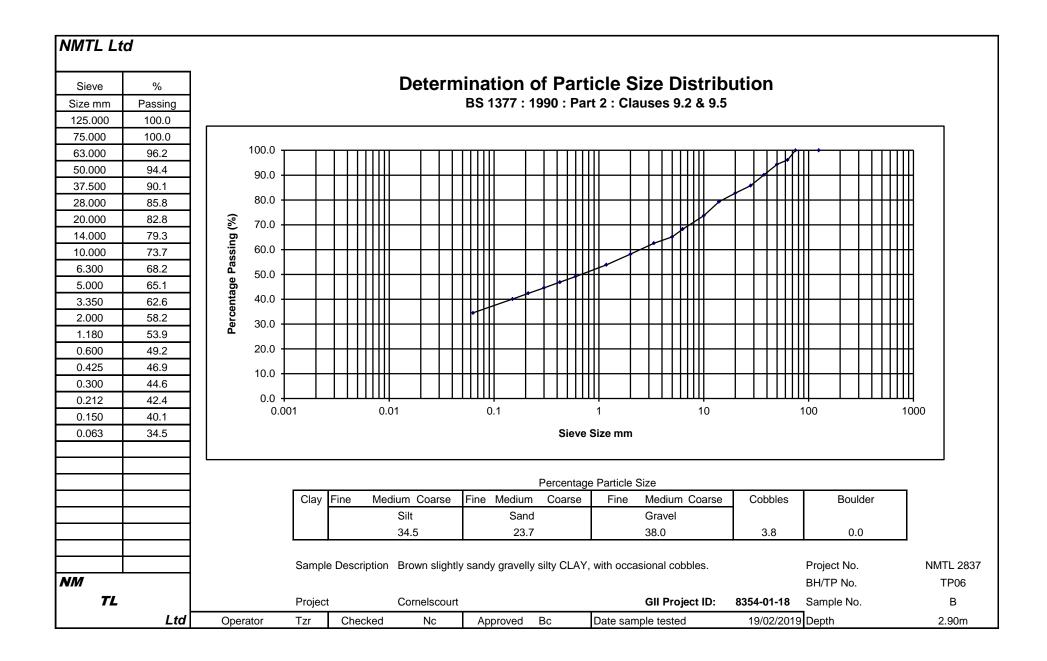
### SUMMARY OF TEST RESULTS

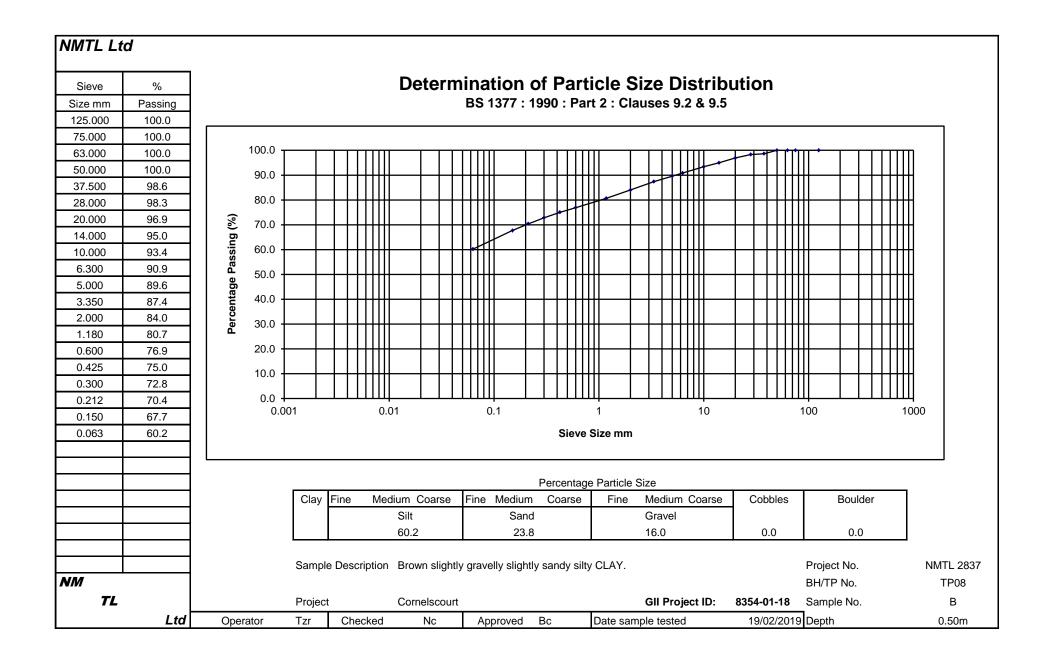


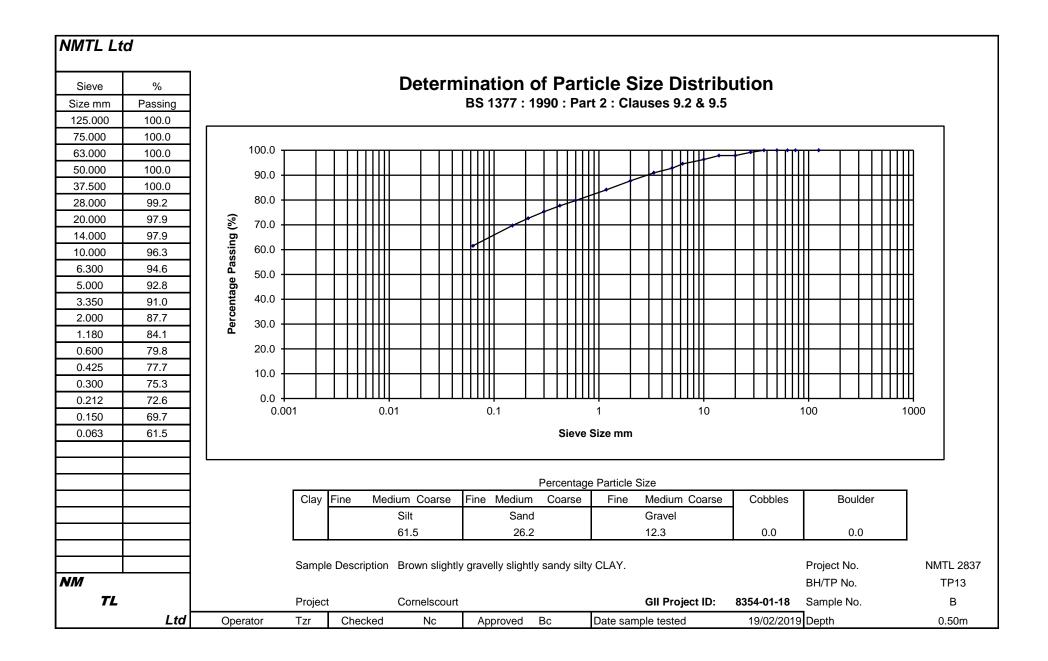


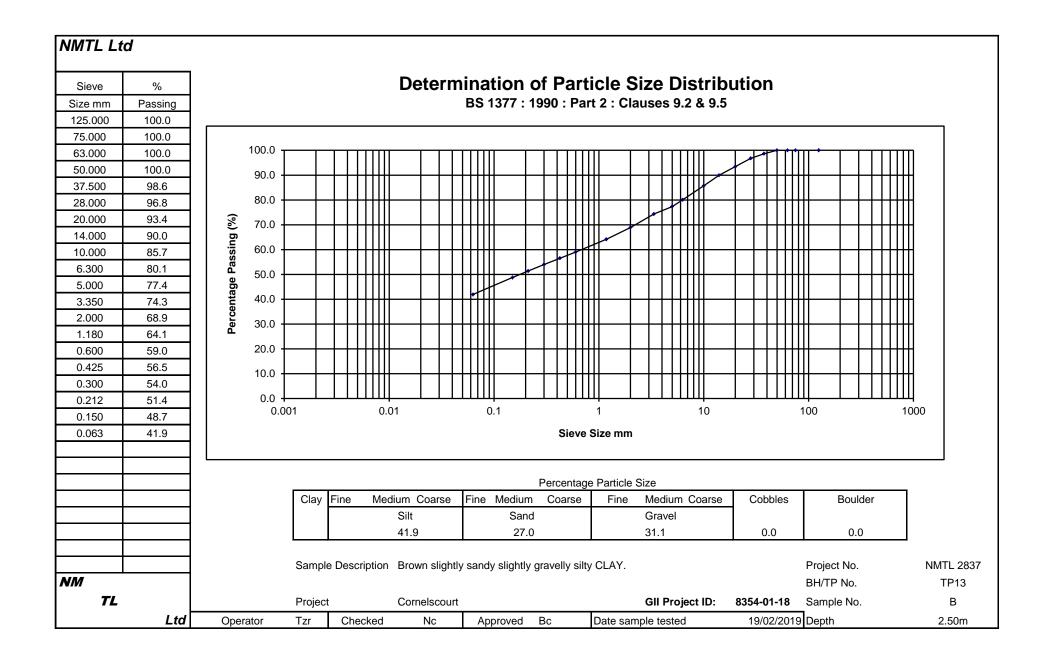


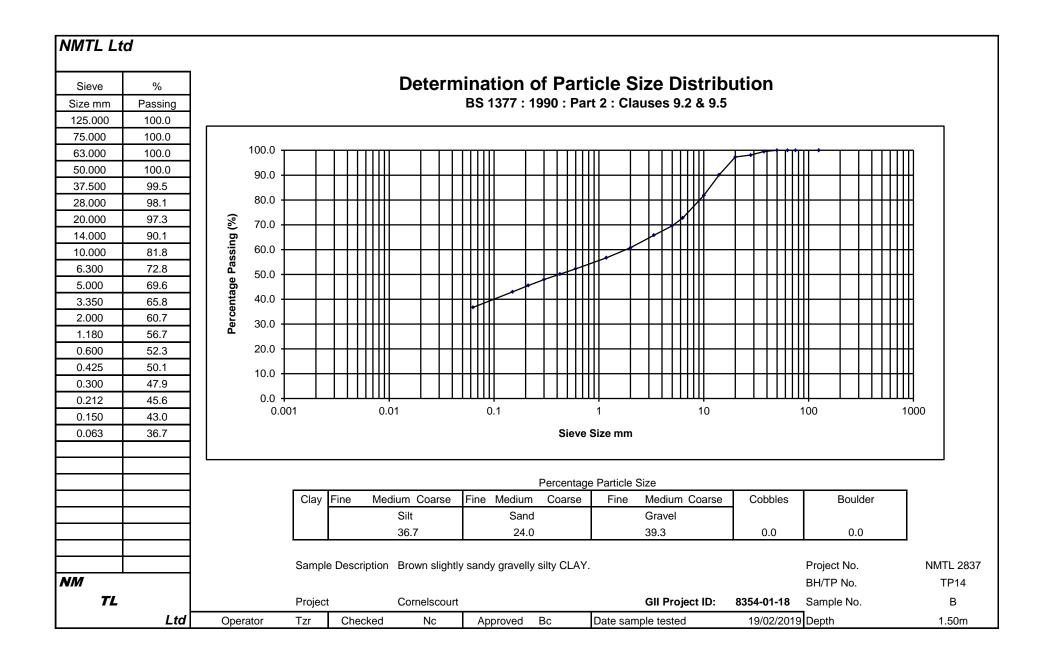


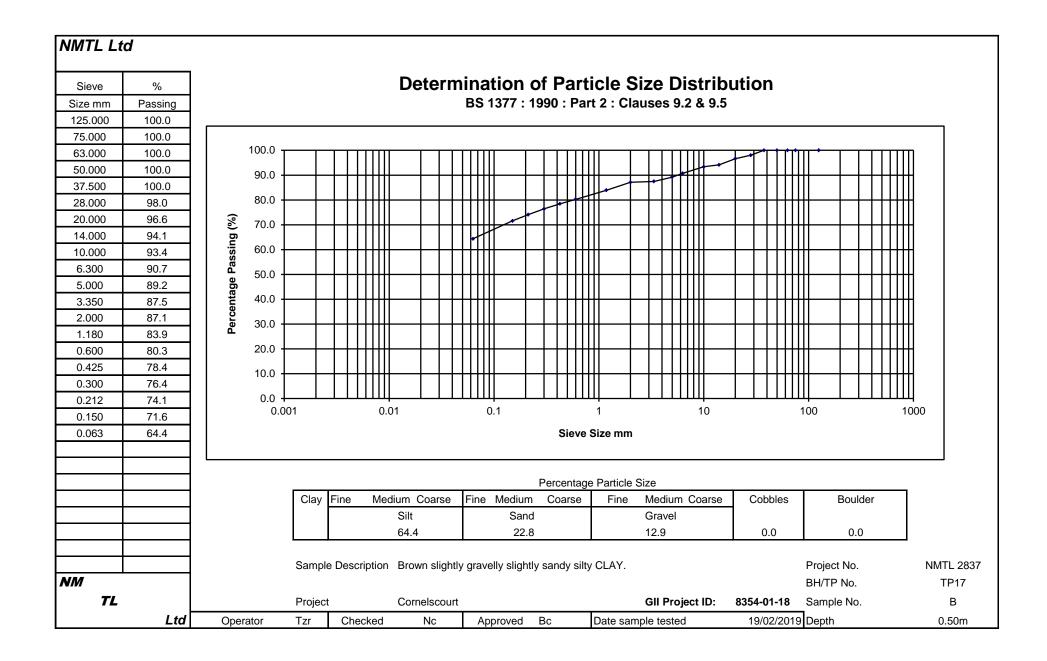


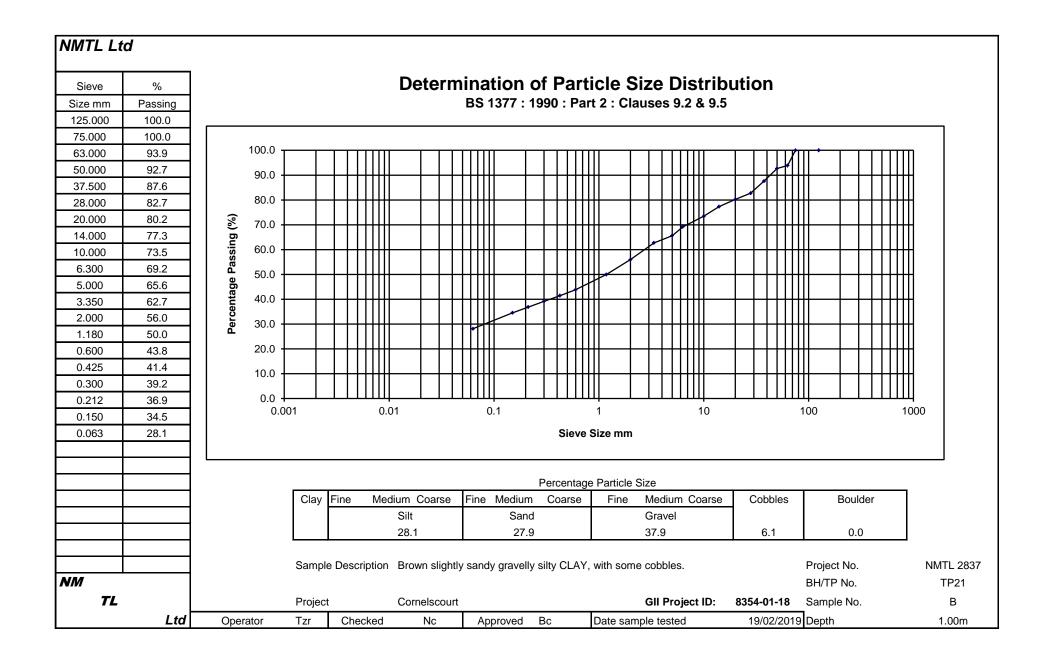












# **APPENDIX 8.2** – Rock Laboratory Records



Trinity College Dublin Coláiste na Tríonóide, Baile Átha Cliath The University of Dublin Geotechnical Laboratory, Civil, Structural & Environmental Engineering & Environmental Engineering Trinity College, Dublin.2.

Ground Investigations Ireland Ltd, Catherinestown House, Hazelhatch Road, Newcastle, Co. Dublin

+353 1 8961009 edunne@tcd.ie

## **Unconfined Compression Tests On Rock Cores**

Project:	Cornelscourt
Project No:	7354 - 01 - 19
Delivery Date:	27.03.2019
Test Date:	01.04.2019

Borehole Number	Depth (m)	Average Diameter (mm)	Height (mm)	Length/Dia. (Ratio)	Unconfined Compressive Strength (Mpa)	Density (Mg/m <sup>3</sup> )
BH - 02	12.40 - 12.90	63.4	159.2	2.51	23.6	2.51
BH - 06	7.30 - 7.50	63.4	112.5	1.77	16.9	2.46
BH - 08	4.10 - 4.40	0.0	159.1	2.51	27.8	2.52
BH - 09	3.00 - 3.20	62.8	134.5	2.14	27.5	2.55
BH - 10	5.40 - 5.70	63.3	158.9	2.51	27.7	2.54
BH - 11	4.90 - 5.40	63.2	158.7	2.51	18.8	2.50

Prof. B. O'Kelly

Specimens prepared and tested in accordance with suggested method from International Society for Rock Mechanics (ISRM), 1985



Trinity College Dublin Coláiste na Tríonóide, Baile Átha Cliath The University of Dublin

Geotechnical Laboratory, Civil, Structural & Environmental Engineering & Environmental Engineering Trinity College, Dublin.2.

Ground Investigations Ireland Ltd, Catherinestown House, Hazelhatch Road, Newcastle, Co. Dublin

+353 1 8961009 edunne@tcd.ie

## Point Load Index Tests (single diametral determination)

Project:	Cornelscourt
Project No:	8354 - 01 - 19
Delivery date:	27.03.2019
Test Date:	02.04.2019

Diametric samples Borehole No.	Depth (m)	Is(50) (Mpa)
BH - 02	12.10 - 12.30	0.76
BH - 03	13.00 - 13.30	0.61
BH - 04	8.80 - 9.10	1.56
BH - 05	6.20 - 6.30	0.50
BH - 06	6.20 - 6.30	0.17
BH - 06	10.00 - 10.20	0.39
BH - 07	7.20 - 7.30	0.70
BH - 08	3.60 - 3.90	1.08
BH - 09	4.35 - 4.50	4.66
BH - 10	3.70 - 3.90	0.23
BH - 11	3.60 - 3.90	0.76

Prof. Brendan O'Kelly

Specimens prepared and tested in accordance with suggested method from International Society for Rock Mechanics (ISRM), 1985

# **APPENDIX 8.3** – Environmental Laboratory Records



Ground Investigations Ireland Catherinestown House

Hazelhatch Road

Newcastle Co. Dublin Ireland

## Exova Jones Environmental

Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

Unit 3 Deeside Point Zone 3 Deeside Industrial Park Deeside CH5 2UA

#### Tel: +44 (0) 1244 833780 Fax: +44 (0) 1244 833781



Attention :	Barry Sexton
Date :	11th February, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/1176 Batch 1
Location :	Cornelscourt
Date samples received :	24th January, 2019
Status :	Final report
Issue :	1

Thirty eight samples were received for analysis on 24th January, 2019 of which twenty four 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.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Phil Sommerton BSc Project Manager

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176												
J E Sample No.	1-3	4-6	10-12	13-15	19-21	28-30	31-33	37-39	40-42	43-45			
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-04	TP-04	TP-05	TP-06	TP-06			
Depth	0.50	1.50	0.60	1.60	0.50	1.00	2.00	0.80	0.50	1.50	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT												
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1			Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	LOD/LOR	Units	No.
Antimony	2	-	2	-	3	2	-	2	2	2	<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	16.1	-	10.9	-	16.3	10.1	-	15.4	7.7	11.3	<0.5	mg/kg	TM30/PM15
Barium <sup>#</sup>	143	-	73	-	165	63	-	121	87	81	<1	mg/kg	TM30/PM15
Cadmium <sup>#</sup>	2.6	-	1.9	-	2.7	1.8	-	2.9	1.7	2.1	<0.1	mg/kg	TM30/PM15
Chromium <sup>#</sup>	88.9	-	42.7	-	73.1	54.8	-	76.8	77.4	50.0	<0.5	mg/kg	TM30/PM15
Copper <sup>#</sup>	27	-	27	-	35	27	-	33	18	32	<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	24	-	17	-	70	18	-	142	12	16	<5	mg/kg	TM30/PM15
Mercury#	<0.1	-	<0.1	-	<0.1	<0.1	-	0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum <sup>#</sup>	3.6	-	3.2	-	5.5	4.2	-	5.7	3.3	3.5	<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	48.1	-	40.0	-	53.5	35.7	-	51.6	31.6	44.4	<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>	2	-	1	-	2	1	-	2	<1	<1	<1	mg/kg	TM30/PM15
Zinc <sup>#</sup>	107	-	88	-	138	101	-	144	61	96	<5	mg/kg	TM30/PM15
PAH MS													714/51/0
Naphthalene #	<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	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene <sup>#</sup>	<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	-	0.05	<0.03	-	0.05	<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	mg/kg	TM4/PM8
Fluoranthene <sup>#</sup>	<0.03	-	<0.03	-	0.10	<0.03	-	0.10	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	-	<0.03	-	0.10	<0.03	-	0.10	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-	<0.06	-	0.10	<0.06	-	0.10	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	<0.02	-	<0.02	-	0.06	<0.02	-	0.08	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	-	<0.07	-	0.11	<0.07	-	0.14	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-	<0.04	-	0.06	<0.04	-	0.08	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene#	<0.04	-	<0.04	-	<0.04	<0.04	-	0.05	<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	mg/kg	TM4/PM8
Benzo(ghi)perylene <sup>#</sup>	<0.04	-	<0.04	-	<0.04	<0.04	-	0.06	<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	mg/kg	TM4/PM8
PAH 6 Total <sup>#</sup>	<0.22	-	<0.22	-	0.27	<0.22	-	0.43	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	-	<0.64	-	<0.64	<0.64	-	0.76	<0.64	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-	<0.05	-	0.08	<0.05	-	0.10	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-	<0.02	-	0.03	<0.02	-	0.04	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	-	<1	-	<1	<1	-	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	98	-	97	-	99	96	-	96	99	91	<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	-	<30	-	<30	<30	-	<30	<30	<30	<30	mg/kg	TM5/PM8/PM16

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Sample No.         1-3         4-6         10-12         13-15         19-21         28-30         31-33         37-39         40-42         43-45           Sample ID         TP-01         TP-01         TP-01         TP-02         TP-03         TP-03         TP-04         TP-04         TP-04         TP-04         TP-04         TP-05         TP-06         TP-07	
Depth         0.50         1.50         0.60         1.60         0.50         1.00         0.80         0.80         0.50         1.50         Pease sectored abbreviations and abbreviabbreviatins and abbreviations and abbreviations and abbreviabbrev	Method No. TM36/PM12 TM36/PM12
COC No / misc       VJ       VJT	Method No. TM36/PM12 TM36/PM12
COC No / micNo	Method No. TM36/PM12 TM36/PM12
Sample Date         21/01/2019         21/01/2019         21/01/2019         21/01/2019         22/01/2019         22/01/2019         21/01/2019         21/01/2019         21/01/2019           Sample Type         Soil         Soil <ths< th=""><th>No. TM36/PM12 TM36/PM12</th></ths<>	No. TM36/PM12 TM36/PM12
Sample Damb Sample	No. TM36/PM12 TM36/PM12
Sampletys         Soil	No. TM36/PM12 TM36/PM12
Batch Nume         1 <th1< th=""><th>No. TM36/PM12 TM36/PM12</th></th1<>	No. TM36/PM12 TM36/PM12
Date of ReciseMode<	No. TM36/PM12 TM36/PM12
TPH CWG         Image: Main and the set of t	TM36/PM12 TM36/PM12
AliphaticsImage: section of the section o	TM36/PM12
$C5-C6^{#}$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ $<0.1$ <th< td=""><td>TM36/PM12</td></th<>	TM36/PM12
< 66-68 $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ $< 0.1$ <td>TM36/PM12</td>	TM36/PM12
< C8-C10 $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < 0.1$ $< < < 0.1$ $< < < 0.1$ $< < < 0.1$ $< < < < 0.1$ $< < < < 0.1$ $< < < < < 0.1$ $< < < < < < < < < < < < < < < < < < <$	
<c10-c12<sup>#       &lt;0.2       &lt;0.2<td></td></c10-c12<sup>	
< C12-C16" $< 44$ $< 4$ $< 4$ $< 4$ $< 4$ $< 4$ $< 4$ $< 4$ $< 4$ $< 64$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$ $< 70$	TM5/PM8/PM16
< -76-C21# $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ $< -7$ <t< td=""><td>TM5/PM8/PM16</td></t<>	TM5/PM8/PM16
>C35-C40       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7       <7	TM5/PM8/PM16
Total aliphatics C5-40         <26         -         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26         <26	TM5/PM8/PM16
>C6-C10       <0.1       <0.1       <0.1       <0.1       <0.1       <0.1       <0.1       <0.1       mg/kg         >C10-C25       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       mg/kg         >C25-C35       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10	TM5/PM8/PM16
>C10-C25       <10       -       <10       <10       <10       <10       <10       <10       <10       mg/kg         >C25-C35       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10       <10	TM5/TM38/PM8/PM12/PM18
>C25-C35         <10         -         <10         -         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10 <td>TM36/PM12</td>	TM36/PM12
Aromatics	TM5/PM8/PM16
	TM5/PM8/PM16
	TM26/DM42
>EC7-EC8 <sup>#</sup> <0.1 - <0.1 - <0.1 <0.1 - <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 mg/kg	TM36/PM12 TM36/PM12
>EC8-EC10#         <0.1         -         <0.1         <0.1         <0.1         <0.1         <0.1         <0.1         <0.1         mg/kg	TM36/PM12
>EC10-EC12 <sup>#</sup> <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 <sup>#</sup> <4 - <4 <4 <4 <4 <4 <4 mg/kg	TM5/PM8/PM16
>EC16-EC21 <sup>#</sup> <7 - <7 - <7 - <7 <7 <7 <7 mg/kg	TM5/PM8/PM16
>EC21-EC35 <sup>#</sup> <7 - <7 - <7 <7 - <7 <7 <7 <7 mg/kg	TM5/PM8/PM16
>EC35-EC40 <7 - <7 - <7 <7 <7 <7 <7 mg/kg	TM5/PM8/PM16
Total aromatics C5-40         <26         -         <26         -         <26         -         <26         <26         <26         <26         mg/kg	TM5/TM38/PM8/PM12/PM18
Total aliphatics and aromatics(C5-40)         <52         -         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52         <52	TM5/TM38/PM8/PM12/PM18
>EC6-EC10 <sup>#</sup> <0.1 - <0.1 - <0.1 - <0.1 - <0.1 <0.1 <0.1 <0.1 mg/kg	TM36/PM12
>EC10-EC25 <10 - <10 - <10 <10 - <10 <10 <10 mg/kg	TM5/PM8/PM16
>EC25-EC35 <10 - <10 - <10 <10 - <10 <10 <10 <10 mg/kg	TM5/PM8/PM16
MTBE <sup>#</sup> <5 - <5 - <5 - <5 <-5 <-5 <-5 <-5 <-5 <	TM31/PM12
Benzene <sup>#</sup> <5         -         <5         -         <5         -         <5         -         <5         <5         <5         <5         ug/kg	TM31/PM12
Toluene # <5 - <5 - <5 - <5 <-5 <-5 <-5 <-5 ug/kg	TM31/PM12
Ethylbenzene <sup>#</sup> <5 - <5 - <5 <-5 <-5 <-5 <-5 <-5 ug/kg	TM31/PM12
m/p-Xylene <sup>#</sup> <5 - <5 <-5 <-5 <-5 <-5 <5 ug/kg	TM31/PM12
o-Xylene <sup>#</sup> <5 - <5 - <5 <-5 <-5 <5 ug/kg	TM31/PM12
PCB 28 <sup>#</sup> <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 <sup>#</sup> <5 - <5 - <5 - <5 <5 <5 <5 ug/kg	TM17/PM8
PCB 118 <sup>#</sup> <5         -         <5         <5         <5         <5         <5         ug/kg           PCB 138 <sup>#</sup> <5	TM17/PM8
PCB 138 <sup>#</sup> <5         -         <5         <5         <5         <5         <5         ug/kg           PCB 153 <sup>#</sup> <5         -         <5         <5         <5         <5         <5         <5         ug/kg           PCB 153 <sup>#</sup> <5         -         <5         <5         <5         <5         <5         ug/kg	TM17/DM0
PCB 153         C5         C5 <t< td=""><td>TM17/PM8 TM17/PM8</td></t<>	TM17/PM8 TM17/PM8
Total 7 PCBs#         <35         -         <35         -         <35         -         <35         -         <35         -         <35         -         <35         <35         <35         <35         ug/kg	TM17/PM8 TM17/PM8 TM17/PM8

Client Name:
Reference:
Location:
Contact:
JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176												
J E Sample No.	1-3	4-6	10-12	13-15	19-21	28-30	31-33	37-39	40-42	43-45			
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-04	TP-04	TP-05	TP-06	TP-06			
Depth	0.50	1.50	0.60	1.60	0.50	1.00	2.00	0.80	0.50	1.50		e attached n	
COC No / misc											abbrevi	ations and a	ronyms
Containers	VJT												
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			No.
Natural Moisture Content	17.4	-	15.1	-	23.2	18.0	-	26.2	16.4	14.2	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	14.8	-	13.1	-	18.8	15.3	-	20.7	14.1	12.5	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	<0.3	-	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-		-		-	-		-	-		<0.0015	g/l	TM38/PM20
Chromium III	88.9	-	42.7	-	73.1	54.8	-	76.8	77.4	50.0	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.70	-	0.36	-	1.58	0.34	-	1.66	0.28	0.34	<0.02	%	TM21/PM24
рН#	8.46		8.76		8.40	8.80		8.52	8.62	8.74	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1042	-	0.1058	-	0.1137	0.1107	-	0.1125	0.1046	0.1048		kg	NONE/PM17
Mass of dried test portion	0.09	-	0.09	-	0.09	0.09	-	0.09	0.09	0.09		kg	NONE/PM17

Client Name:
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Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176												
J E Sample No.	52-54	55-57	58-60	64-66	67-69	73-75	76-78	81-83	84-86	94-96			
Sample ID	TP-07	TP-07	TP-07	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14			
Depth	0.50	1.50	2.50	0.50	1.50	0.50	1.50	0.50	1.50	1.00	Please se	otes for all	
COC No / misc											abbrevi	cronyms	
Containers	VJT												
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1			Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	LOD/LOR	Units	No.
Antimony	1	2	1	3	2	3	2	3	2	2	<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	7.6	7.8	7.7	15.8	12.2	17.8	14.6	18.6	10.4	11.8	<0.5	mg/kg	TM30/PM15
Barium #	36	62	65	147	255	139	99	125	69	75	<1	mg/kg	TM30/PM15
Cadmium <sup>#</sup>	1.8	1.8	1.4	3.0	3.5	3.0	2.6	2.5	1.9	2.2	<0.1	mg/kg	TM30/PM15
Chromium <sup>#</sup>	40.1	54.6	47.5	66.8	59.7	67.6	70.0	79.6	54.6	60.1	<0.5	mg/kg	TM30/PM15
Copper <sup>#</sup>	26	23	21	31	37	42	40	44	32	41	<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	11	14	12	26	25	35	26	84	17	157	<5	mg/kg	TM30/PM15
Mercury#	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	0.2	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	3.4	3.4	2.8	5.6	6.2	5.8	4.8	4.9	3.8	3.6	<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	21.2	29.7	29.2	54.4	61.0	66.7	54.4	47.3	42.4	44.0	<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>	<1	1	<1	2	3	2	1	2	1	1	<1	mg/kg	TM30/PM15
Zinc <sup>#</sup>	66	80	67	134	107	143	116	139	91	139	<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	0.15	<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	0.15	<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	0.09	<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	0.39	<0.04	mg/kg	TM4/PM8
Phenanthrene <sup>#</sup>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.06	<0.03	1.51	<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	0.30	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.09	<0.03	1.06	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.10	<0.03	2.80	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.10	<0.06	0.59	<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	0.37	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.14	<0.07	0.69	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	0.60	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	0.36	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	1.64	<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	0.62	<0.04	mg/kg	TM4/PM8
PAH 6 Total <sup>#</sup>	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	0.42	<0.22	4.35	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	0.76	<0.64	11.37	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.10	<0.05	0.50	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.19	<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	105	97	99	98	96	105	108	112	99	97	<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	<30	<30	<30	<30	<30	<30	<30	<30	3329	<30	mg/kg	TM5/PM8/PM16

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE JOD NO.:	19/11/6										_		
J E Sample No.	52-54	55-57	58-60	64-66	67-69	73-75	76-78	81-83	84-86	94-96			
Sample ID	TP-07	TP-07	TP-07	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14			
Depth	0.50	1.50	2.50	0.50	1.50	0.50	1.50	0.50	1.50	1.00	Please se	otos for all	
COC No / misc												otes for all cronyms	
Containers	VJT	VJT	VJT										
Sample Date													
-													
Sample Type	Soil	Soil	Soil										
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			110.
TPH CWG													
Aliphatics	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12
>C5-C6 >C6-C8 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1 <0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1 0.2 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12
>C10-C12 <sup>#</sup>	<0.2	1.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	17.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 <sup>#</sup>	<4	<4	<4	<4	<4	<4	<4	<4	<4	12	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	66	<7	mg/kg	TM5/PM8/PM16
>C21-C35 *	<7	<7	<7	<7	<7	<7	<7	<7	<7	2821	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	413	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	3329	<26	mg/kg	TM5/TM38/PM8/PM12/PM16
>C6-C10 >C10-C25	<0.1 <10	<0.1 <sup>SV</sup>	<0.1 <10	0.2 <sup>SV</sup> 530	<0.1 <10	mg/kg	TM36/PM12 TM5/PM8/PM16						
>C10-C25 >C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	2358	<10	mg/kg mg/kg	TM5/PM8/PM16
Aromatics	<10	<10	<10	(10	<10	(10	(10	(10	(10	2000	<10	mg/kg	
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12
>EC7-EC8#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12
>EC8-EC10 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12
>EC10-EC12 <sup>#</sup>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	31.4	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	36	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	129	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	1585	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 Total aromatics C5-40	<7 <26	<7	<7	<7	<7	<7 <26	<7 <26	<7	<7	291 2072	<7	mg/kg	TM5/PM8/PM16
Total aliphatics and aromatics(C5-40)	<20	<26 <52	<26 <52	<26 <52	<26 <52	<20	<20	<26 <52	<26 <52	5401	<26 <52	mg/kg mg/kg	TM5/TM38/PM8/PM12/PM16
>EC6-EC10 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	463	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	1315	<10	mg/kg	TM5/PM8/PM16
MTBE <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5 <sup>SV</sup>	<5	<5 <sup>\$V</sup>	<5	ug/kg	TM31/PM12
Benzene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5 <sup>SV</sup>	<5	<5 <sup>SV</sup>	<5	ug/kg	TM31/PM12
Toluene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5 <sup>SV</sup>	<5	<5 <sup>SV</sup>	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5 <5	<5 <sup>SV</sup>	<5 <5	13 <sup>sv</sup> 15 <sup>sv</sup>	<5 <5	ug/kg ug/kg	TM31/PM12 TM31/PM12						
m/p-Xylene <sup>#</sup>	<0 <5	<5	<5	<5	<5	<5	<5	<5 <sup>50</sup>	<5	30 <sup>SV</sup>	<5	ug/kg	TM31/PM12 TM31/PM12
				.0				~5				-9.19	
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 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs <sup>#</sup>	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Client Name:
Reference:
Location:
Contact:
JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE JOD NO.:	19/1176										_				
J E Sample No.	52-54	55-57	58-60	64-66	67-69	73-75	76-78	81-83	84-86	94-96					
Sample ID	TP-07	TP-07	TP-07	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14					
Depth	0.50	1.50	2.50	0.50	1.50	0.50	1.50	0.50	1.50	1.00	Please se	otes for all			
COC No / misc											abbrevi	abbreviations and acronyms			
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT					
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		1			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method		
Date of Receipt													No.		
Natural Moisture Content Moisture Content (% Wet Weight)	13.5 11.9	14.2 12.5	14.7 12.8	23.3 18.9	17.0 14.6	23.9 19.3	18.4 15.5	29.8 23.0	11.5 10.3	17.0 14.5	<0.1 <0.1	%	PM4/PM0 PM4/PM0		
······································	1110	12.0	1210	10.0	1110	1010	1010	20.0	1010	1110	40.11	,0			
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20		
Sulphate as SO4 (2:1 Ext) # Chromium III	- 40.1	- 54.6	47.5	- 66.8	59.7	- 67.6	- 70.0	- 79.6	54.6	- 60.1	<0.0015 <0.5	g/l mg/kg	TM38/PM20 NONE/NONE		
	40.1	04.0	<del>ч</del> т.3	00.0	33.1	07.0	70.0	13.0	04.0	00.1	<0.5	тулу			
Total Organic Carbon #	0.43	0.27	0.18	0.67	0.64	0.85	0.69	4.57	0.33	1.04	<0.02	%	TM21/PM24		
рН #	8.94	8.78	8.91	8.18	8.57	8.33	8.46	8.35	8.86	8.46	<0.01	pH units	TM73/PM11		
Mass of raw test portion	0.0985	0.1004	0.1067	0.1087	0.1013	0.111	0.1061	0.112	0.1029	0.1026		kg	NONE/PM17		
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		

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE JOD NO.:	19/11/6							-		
J E Sample No.	97-99	100-102	103-105	106-108						
Sample ID	TP-14	TP-14	TP-20	TP-20						
Depth	2.00	3.00	0.50	1.50						
COC No / misc	2.00	0.00	0.00	1.00					e attached n ations and a	
Containers	VJT	VJT	VJT	VJT						
Sample Date	22/01/2019	22/01/2019	21/01/2019	21/01/2019						
Sample Type	Soil	Soil	Soil	Soil						•
Batch Number	1	1	1	1				LOD/LOR	Units	Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019				LOD/LON	onito	No.
Antimony	1	2	3	1				<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	7.2	9.2	17.4	8.0				<0.5	mg/kg	TM30/PM15
Barium <sup>#</sup>	51	63	139	96				<1	mg/kg	TM30/PM15
Cadmium <sup>#</sup>	1.7	1.9	5.4	1.9				<0.1	mg/kg	TM30/PM15
Chromium #	45.7	54.7	76.6	38.5				<0.5	mg/kg	TM30/PM15
Copper <sup>#</sup>	26	23	140	26				<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	65	24	72	15				<5	mg/kg	TM30/PM15
Mercury <sup>#</sup>	<0.1	<0.1	0.2	<0.1				<0.1	mg/kg	TM30/PM15
Molybdenum #	2.8	2.8	6.0	3.5				<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	22.7	34.2	49.9	32.9				<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>	1	<1	2	1				<1	mg/kg	TM30/PM15
Zinc <sup>#</sup>	68	79	181	80				<5	mg/kg	TM30/PM15
PAH MS										
Naphthalene <sup>#</sup>	1.45	0.16	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.28	0.14	<0.03	<0.03				<0.03	mg/kg	TM4/PM8
Acenaphthene #	0.10	0.09	<0.05	<0.05				<0.05	mg/kg	TM4/PM8
Fluorene <sup>#</sup>	0.54	0.41	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Phenanthrene #	2.19	1.54	0.08	<0.03				<0.03	mg/kg	TM4/PM8
Anthracene #	0.42	0.30	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Fluoranthene #	1.15	0.80	0.14	<0.03				<0.03	mg/kg	TM4/PM8
Pyrene #	2.86	2.41	0.14	<0.03				<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.59	0.47	0.13	<0.06				<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	0.36	0.27	0.10	<0.02				<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.46	0.33	0.20	<0.07				<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.43	0.35	0.11	<0.04				<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene <sup>#</sup>	0.17	0.17	0.08	<0.04				<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene <sup>#</sup>	0.82	0.67	0.08	<0.04				<0.04	mg/kg	TM4/PM8
	0.28	0.24	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
PAH 6 Total <sup>#</sup>	3.03	2.32	0.61	<0.22				<0.22	mg/kg	TM4/PM8
PAH 17 Total	12.10	8.35	1.06	<0.64				<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.33	0.24	0.14	<0.05				<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.13	0.09	0.06	<0.02				<0.02	mg/kg	
Benzo(j)fluoranthene PAH Surrogate % Recovery	<1 101	<1 102	<1 107	<1 102				<1 <0	mg/kg %	TM4/PM8 TM4/PM8
FAR Surrogale % Recovery	101	102	107	102				<0	70	1 1014/17 1010
Mineral Oil (C10-C40)	3848	3465	<30	<30				<30	mg/kg	TM5/PM8/PM16

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176							_		
J E Sample No.	97-99	100-102	103-105	106-108				]		
Sample ID	TP-14	TP-14	TP-20	TP-20						
Depth	2.00	3.00	0.50	1.50				Please se	otes for all	
COC No / misc									ations and a	
Containers	VJT	VJT	VJT	VJT						
Sample Date										
Sample Type	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1				LOD/LOR	Units	Method No.
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019		 				140.
TPH CWG										
Aliphatics	<0.1 <sup>SV</sup>	<0.1 <sup>SV</sup>	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C5-C6 >C6-C8 <sup>#</sup>	<0.1 0.3 <sup>SV</sup>	<0.1 0.2 <sup>SV</sup>	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C8-C10	1.7 <sup>SV</sup>	0.2 0.9 <sup>SV</sup>	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C10-C12 <sup>#</sup>	16.7	8.3	1.8	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 <sup>#</sup>	12	<4	<4	<4				<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	81	66	<7	<7				<7	mg/kg	TM5/PM8/PM16
>C21-C35#	3251	2906	<7	<7				<7	mg/kg	TM5/PM8/PM16
>C35-C40	487	485	<7	<7				<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	3850	3466	<26	<26				<26	mg/kg	TM5/TM38/PM8/PM12/PM16
>C6-C10	2.0 <sup>SV</sup>	1.1 <sup>SV</sup>	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C10-C25	644	567	<10	<10				<10	mg/kg	TM5/PM8/PM16 TM5/PM8/PM16
>C25-C35 Aromatics	2658	2444	<10	<10				<10	mg/kg	1105/P106/P10116
>C5-EC7 <sup>#</sup>	<0.1 <sup>SV</sup>	<0.1 <sup>SV</sup>	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC7-EC8 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC8-EC10 <sup>#</sup>	0.4 <sup>SV</sup>	<0.1 <sup>SV</sup>	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC10-EC12#	49.6	28.5	<0.2	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 <sup>#</sup>	57	36	<4	<4				<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	145	133	<7	<7				<7	mg/kg	TM5/PM8/PM16
>EC21-EC35#	1426	1413	<7	<7				<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	268	281	<7	<7				<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	1946	1892	<26	<26				<26	mg/kg	TM5/TM38/PM8/PM12/PM16 TM5/TM38/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) >EC6-EC10 #	5796 0.4 <sup><b>sv</b></sup>	5358 <0.1 <sup><b>SV</b></sup>	<52 <0.1	<52 <0.1				<52 <0.1	mg/kg mg/kg	TM36/PM12
>EC10-EC25	458	416	<10	<10				<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	1142	1162	<10	<10				<10	mg/kg	TM5/PM8/PM16
MTBE <sup>#</sup>	21 <sup>sv</sup>	18 <sup>sv</sup>	<5	<5				<5	ug/kg	TM31/PM12
Benzene <sup>#</sup>	22 <sup>SV</sup>	12 <sup>SV</sup>	<5	<5				<5	ug/kg	TM31/PM12
Toluene <sup>#</sup>	7 <sup>SV</sup>	<5 <sup>\$V</sup>	<5	<5				<5	ug/kg	TM31/PM12
Ethylbenzene #	100 <sup>SV</sup>	14 <sup>SV</sup>	<5	<5				<5	ug/kg	TM31/PM12
m/p-Xylene #	240 <sup>SV</sup>	32 <sup>SV</sup>	<5	<5				<5	ug/kg	TM31/PM12
o-Xylene #	107 <sup>SV</sup>	<5 <sup>SV</sup>	<5	<5				<5	ug/kg	TM31/PM12
PCB 28 <sup>#</sup>	<5	<5	<5	<5				<5	ug/kg	TM17/PM8
PCB 52 <sup>#</sup>	<5	<5	<5	<5				<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5				<5	ug/kg	TM17/PM8
PCB 118 <sup>#</sup>	<5	<5	<5	<5				<5	ug/kg	TM17/PM8
PCB 138 <sup>#</sup>	<5	<5	<5	<5				<5	ug/kg	TM17/PM8
PCB 153 <sup>#</sup>	<5	<5	<5	<5				<5	ug/kg	TM17/PM8
PCB 180 *	<5	<5	<5	<5				<5	ug/kg	TM17/PM8
Total 7 PCBs <sup>#</sup>	<35	<35	<35	<35				<35	ug/kg	TM17/PM8

Client Name: Reference: Location: Contact: JE Job No.:	Ground In 8354-01-1 Cornelsco Barry Sex 19/1176	ourt	ns Ireland			Report : Solids: V=	r, J=250g gl	ass jar, T=p	lastic tub		
J E Sample No.	97-99	100-102	103-105	106-108							
Sample ID	TP-14	TP-14	TP-20	TP-20							
Depth	2.00	3.00	0.50	1.50					Discourse		
COC No / misc										e attached n ations and ac	
Containers	VJT	VJT	VJT	VJT							
Sample Date	22/01/2019	22/01/2019	21/01/2019	21/01/2019							
Sample Type	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1						Linite	Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019					LOD/LOR	Units	No.
Natural Moisture Content	11.2	13.6	25.0	13.3					<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	10.1	12.0	20.0	11.8					<0.1	%	PM4/PM0
Hexavalent Chromium <sup>#</sup>	<0.3	<0.3	<0.3	<0.3					<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) <sup>#</sup>	-	-	-	-					<0.0015	g/l	TM38/PM20
Chromium III	45.7	54.7	76.6	38.5					<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.72	0.63	2.44	0.24					<0.02	%	TM21/PM24
рН#	8.42	8.68	8.38	8.68					<0.01	pH units	TM73/PM1
Mass of raw test portion	0.1007	0.1016	0.1054	0.103						kg	NONE/PM1
Mass of dried test portion	0.09	0.09	0.09	0.09						kg	NONE/PM1

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : CEN 10:1 1 Batch

JE Job No.:	19/1176										_		
J E Sample No.	1-3	10-12	19-21	28-30	37-39	40-42	43-45	52-54	55-57	58-60			
Sample ID	TP-01	TP-02	TP-03	TP-04	TP-05	TP-06	TP-06	TP-07	TP-07	TP-07			
Depth	0.50	0.60	0.50	1.00	0.80	0.50	1.50	0.50	1.50	2.50	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT												
Sample Date	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1			Martin
Date of Receipt				24/01/2019				24/01/2019			LOD/LOR	Units	Method No.
Dissolved Antimony <sup>#</sup>	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.003	<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	0.003	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic <sup>#</sup>	<0.0025	<0.0025	<0.0025	<0.0025	0.0032	<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	0.032	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium <sup>#</sup>	<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 Barium (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
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 <sup>#</sup>	<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 <sup>#</sup>	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.006	0.007	0.003	0.004	0.005	0.005	0.006	0.004	0.005	0.006	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.06	0.07	0.03	0.04	0.05	0.05	0.06	0.04	0.05	0.06	<0.02	mg/kg	TM30/PM17
Dissolved Nickel <sup>#</sup>	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003	< 0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) <sup>#</sup> Dissolved Zinc <sup>#</sup>	<0.03 <0.003	mg/kg	TM30/PM17 TM30/PM17										
Dissolved Zinc (A10) #	<0.003	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/l mg/kg	TM30/PM17
Mercury Dissolved by CVAF <sup>#</sup>	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/l	TM61/PM0
Mercury Dissolved by CVAF <sup>#</sup>	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	6.4	0.6	<0.5	<0.5	<0.5	4.8	3.6	0.7	1.1	0.8	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	64	6	<5	<5	<5	48	36	7	11	8	<5	mg/kg	TM38/PM0
Chloride #	0.9	0.9	0.4	0.4	0.6	0.9	0.8	0.3	<0.3	<0.3	<0.3	mg/l	TM38/PM0
Chloride #	9	9	4	4	6	9	8	3	<3	<3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	2	<2	6	<2	<2	<2	<2	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	20	<20	60	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM0
рН	8.18	8.27	8.07	8.23	8.10	8.40	8.09	8.60	8.45	8.36	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	69	113	172	115	74	93	82	60	54	59	<35	mg/l	TM20/PM0
Total Dissolved Solids <sup>#</sup>	690	1130	1720	1150	740	930	820	600	540	590	<350	mg/kg	TM20/PM0

Client Name: Reference: Location: Contact: JE Job No.: Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : CEN 10:1 1 Batch

JE Job No.:	19/1176												
J E Sample No.	64-66	67-69	73-75	76-78	81-83	84-86	94-96	97-99	100-102	103-105			
Sample ID	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14	TP-14	TP-14	TP-20			
Depth	0.50	1.50	0.50	1.50	0.50	1.50	1.00	2.00	3.00	0.50	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019			
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				24/01/2019		24/01/2019				24/01/2019	LOD/LOR	Units	Method No.
Dissolved Antimony <sup>#</sup>	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.004	<0.002	<0.002	ma/l	TM30/PM17
Dissolved Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.003	0.004	<0.02	<0.02	mg/l mg/kg	TM30/PM17
Dissolved Arsenic <sup>#</sup>	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0027	<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	0.027	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium <sup>#</sup>	0.004	0.004	<0.003	<0.003	0.003	<0.003	0.018	0.034	0.016	0.004	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.04	0.04	<0.03	<0.03	0.03	<0.03	0.18	0.34	0.16	0.04	<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 <sup>#</sup>	<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 <sup>#</sup>	<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 <sup>#</sup>	< 0.005	< 0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05 0.002	<0.05 0.005	<0.05 0.003	<0.05 0.005	<0.05 0.003	<0.05 0.005	<0.05	<0.05 0.009	<0.05 0.016	<0.05 0.003	<0.05 <0.002	mg/kg	TM30/PM17 TM30/PM17
Dissolved Molybdenum <sup>#</sup> Dissolved Molybdenum (A10) <sup>#</sup>	0.002	0.005	0.003	0.005	0.003	0.005	0.009	0.009	0.016	0.003	<0.02	mg/l mg/kg	TM30/PM17
Dissolved Nickel <sup>#</sup>	<0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	0.006	0.008	0.008	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.08	0.08	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium <sup>#</sup>	<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 Selenium (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
Dissolved Zinc <sup>#</sup>	<0.003	<0.003	<0.003	<0.003	<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	<0.03	<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	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	<5	17	<5	<5	<5	<5	<5	<5	6	6	<5	mg/kg	TM38/PM0
Chloride <sup>#</sup>	1.5	0.4	<0.3	<0.3	<0.3	0.7	0.6	0.7	1.0	<0.3	<0.3	mg/l	TM38/PM0
Chloride <sup>#</sup>	15	4	<3	<3	<3	7	6	7	10	<3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	<2	4	<2	6	3	3	3	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	40	<20	60	30	30	30	<20	mg/kg	TM60/PM0
рН	8.13	8.24	7.90	8.22	8.10	7.91	8.29	8.27	8.01	8.07	<0.01	pH units	TM73/PM0
Total Dissolved Solids <sup>#</sup>	131	159	41	<35	78	142	107	80	65	<35	<35	mg/l	TM20/PM0
Total Dissolved Solids *	1310	1590	410	<350	780	1420	1070	800	650	<350	<350	mg/kg	TM20/PM0

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : CEN 10:1 1 Batch

JE JOD NO	19/11/0							
J E Sample No.	106-108							
Sample ID	TP-20							
Depth	1.50					Please se	e attached n	otes for all
COC No / misc							ations and a	
Containers	VJT							
Sample Date	21/01/2019							
Sample Type	Soil							
Batch Number	1							
						LOD/LOR	Units	Method No.
Date of Receipt						.0.002		TM20/DM47
Dissolved Antimony <sup>#</sup>	<0.002 <0.02					<0.002	mg/l	TM30/PM17 TM30/PM17
Dissolved Antimony (A10) #	<0.02					<0.02 <0.0025	mg/kg	TM30/PM17
Dissolved Arsenic <sup>#</sup>							mg/l	TM30/PM17 TM30/PM17
Dissolved Arsenic (A10) #	<0.025					<0.025	mg/kg	
Dissolved Barium <sup>#</sup>	0.005					<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) *	0.05					<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005					<0.0005	mg/l	TM30/PM17 TM30/PM17
Dissolved Cadmium (A10) #	<0.005					<0.005	mg/kg	
Dissolved Chromium <sup>#</sup>	<0.0015					<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015 <0.007					<0.015 <0.007	mg/kg	TM30/PM17
Dissolved Copper <sup>#</sup>	<0.07					<0.07	mg/l	TM30/PM17 TM30/PM17
Dissolved Copper (A10) <sup>#</sup> Dissolved Lead <sup>#</sup>	<0.07					<0.007	mg/kg	TM30/PM17 TM30/PM17
	<0.005						mg/l	TM30/PM17
Dissolved Lead (A10) <sup>#</sup>	<0.05					< 0.05	mg/kg	TM30/PM17 TM30/PM17
Dissolved Molybdenum #	0.005					<0.002 <0.02	mg/l	TM30/PM17
Dissolved Molybdenum (A10) <sup>#</sup> Dissolved Nickel <sup>#</sup>	< 0.002					<0.02	mg/kg	TM30/PM17 TM30/PM17
Dissolved Nickel (A10) #	<0.02					<0.02	mg/l	TM30/PM17
							mg/kg	TM30/PM17
Dissolved Selenium <sup>#</sup> Dissolved Selenium (A10) <sup>#</sup>	<0.003 <0.03					<0.003 <0.03	mg/l mg/kg	TM30/PM17
Dissolved Zinc <sup>#</sup>	< 0.003					<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03					<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF <sup>#</sup>	<0.0001					<0.0001	mg/l	TM61/PM0
Mercury Dissolved by CVAF	<0.0001					<0.0001	mg/kg	TM61/PM0
Mercury Dissolved by OVA	1010001					40.0001		
Phenol	<0.01					<0.01	mg/l	TM26/PM0
Phenol	<0.1					<0.1	mg/kg	TM26/PM0
Fluoride	<0.3					<0.3	ma/l	TM173/PM0
Fluoride	<0.3					<0.3	mg/l mg/kg	TM173/PM0 TM173/PM0
	<3					<3	mg/kg	1111173/11110
Sulphate as SO4 #	1.9					<0.5	mg/l	TM38/PM0
Sulphate as SO4 <sup>#</sup>	19					<5	mg/kg	TM38/PM0
Chloride <sup>#</sup>	0.3					<0.3	mg/l	TM38/PM0
Chloride <sup>#</sup>	3					<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2					<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20					<20	mg/kg	TM60/PM0
pH	8.22					<0.01	pH units	TM73/PM0
Total Dissolved Solids #	67					<35	mg/l	TM20/PM0
Total Dissolved Solids <sup>#</sup>	670					<350	mg/kg	TM20/PM0
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 Client Name:
 Ground Investigations Ireland

 Reference:
 8354-01-19

 Location:
 Cornelscourt

 Contact:
 Barry Sexton

 JE Job No.:
 19/1176

#### Report : EN12457\_2

J E Sample No.	1-3	10-12	19-21	28-30	37-39	40-42	43-45	52-54	55-57	58-60						
Sample ID	TP-01	TP-02	TP-03	TP-04	TP-05	TP-06	TP-06	TP-07	TP-07	TP-07						
Depth	0.50	0.60	0.50	1.00	0.80	0.50	1.50	0.50	1.50	2.50				Please se	e attached n	otes for all
COC No / misc															ations and a	
Containers	VJT															
Sample Date	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019						
Sample Type	Soil															
Batch Number	1	1	1	1	1	1	1	1	1	1						
Date of Receipt							24/01/2019	24/01/2019	24/01/2019		Inert	Stable Non- reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019						
Total Organic Carbon #	0.70	0.36	1.58	0.34	1.66	0.28	0.34	0.43	0.27	0.18	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6	<0.22	<0.22	0.27	<0.22	0.43	<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	0.76	<0.64	<0.64	<0.64	<0.64	<0.64	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate	0.005	0.005	0.005	0.005	0.000	0.005	0.005	0.005	0.005	0.005				0.005		TM30/PM17
Arsenic"	<0.025	<0.025	<0.025	<0.025	0.032	<0.025	<0.025	<0.025	<0.025	<0.025	0.5 20	2 100	25 300	<0.025	mg/kg	TM30/PM17 TM30/PM17
Barium #	<0.03 <0.005	0.04	100	5	<0.03 <0.005	mg/kg	TM30/PM17 TM30/PM17									
Cadmium # Chromium #	<0.005	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	10	70	<0.005	mg/kg mg/kg	TM30/PM17 TM30/PM17
Copper <sup>#</sup>	<0.013	<0.07	<0.013	<0.013	<0.07	<0.013	<0.07	<0.013	<0.013	<0.013	2	50	100	<0.013	mg/kg	TM30/PM17
Mercury "	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.06	0.07	0.03	0.04	0.05	0.05	0.06	0.04	0.05	0.06	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel <sup>#</sup>	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead "	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc <sup>#</sup>	<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 #	690	1130	1720	1150	740	930	820	600	540	590	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	20	<20	60	<20	<20	<20	<20	<20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1042	0.1058	0.1137	0.1107	0.1125	0.1046	0.1048	0.0985	0.1004	0.1067	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	86.0	85.5	78.9	81.0	79.7	85.8	86.1	91.7	89.2	84.4	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.885	0.885	0.876	0.879	0.877	0.885	0.885	0.892	0.889	0.883	-	-	-		1	NONE/PM17
Eluate Volume	0.75	0.7	0.68	0.69	0.8	0.78	0.85	0.79	0.77	0.78	-	-	-		I	NONE/PM17
рН *	8.46	8.76	8.40	8.80	8.52	8.62	8.74	8.94	8.78	8.91	-	-	-	<0.01	pH units	TM73/PM11
рн	0.40	0.70	0.40	0.00	0.52	0.02	0.74	0.54	0.70	0.91	-	-	_	<0.01	pri units	
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	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphoto oo SO ( #	64	6	<5	<5	<5	48	36	7	11	8	1000	20000	50000	<5	mg/kg	TM38/PM0
Sulphate as SO4 #	9	9	<5	<5 4	<5	48	36	3	11 <3	8 <3	800	15000	25000	<5 <3	mg/kg mg/kg	TM38/PM0 TM38/PM0

 Client Name:
 Ground Investigations Ireland

 Reference:
 8354-01-19

 Location:
 Cornelscourt

 Contact:
 Barry Sexton

 JE Job No.:
 19/1176

#### Report : EN12457\_2

JE JOD NO.:	19/11/6															
J E Sample No.	64-66	67-69	73-75	76-78	81-83	84-86	94-96	97-99	100-102	103-105						
Sample ID	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14	TP-14	TP-14	TP-20						
Depth	0.50	1.50	0.50	1.50	0.50	1.50	1.00	2.00	3.00	0.50				Diagon	o ottoobod r	otoo for all
COC No / misc															e attached r iations and a	
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT						
Sample Date			22/01/2019		22/01/2019	22/01/2019	22/01/2019		22/01/2019							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1						
				-					-		Inert	Stable Non- reactive	Hazardous	LOD LOR	Units	Method No.
Date of Receipt Solid Waste Analysis	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019						
Total Organic Carbon #	0.67	0.64	0.85	0.69	4.57	0.33	1.04	0.72	0.63	2.44	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025 <sup>sv</sup>	<0.025	0.058 <sup>sv</sup>	0.476 <sup>sv</sup>	0.058 <sup>sv</sup>	<0.025	6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	< 0.035	< 0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	3329	3848	3465	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6	<0.22	<0.22	<0.22	<0.22	0.42	<0.22	4.35	3.03	2.32	0.61	-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	<0.64	<0.64	0.76	<0.64	11.37	12.10	8.35	1.06	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.007	0.005				0.007		THOODE
Arsenic"	<0.025 0.04	<0.025 0.04	<0.025	<0.025 <0.03	<0.025	<0.025	<0.025 0.18	<0.025 0.34	0.027	<0.025 0.04	0.5 20	2 100	25 300	<0.025	mg/kg	TM30/PM17 TM30/PM17
Barium "	<0.005	<0.005	<0.03	<0.03	< 0.005	<0.03	<0.005	<0.005	<0.005	<0.005	0.04	100	5	<0.03	mg/kg mg/kg	TM30/PM17 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	10	70	<0.005	mg/kg	TM30/PM17 TM30/PM17
Chromium " Copper "	<0.07	<0.07	<0.07	<0.013	<0.07	<0.07	<0.07	<0.07	<0.07	<0.013	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum "	0.02	0.05	0.03	0.05	0.03	0.05	0.09	0.09	0.16	0.03	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel <sup>#</sup>	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.08	0.08	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead"	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	<0.05	<0.05	0.5	10	50	< 0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium "	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	<0.03	<0.03	<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	0.05	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1310	1590	410	<350	780	1420	1070	800	650	<350	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	40	<20	60	30	30	30	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1087	0.1013	0.111	0.1061	0.112	0.1029	0.1026	0.1007	0.1016	0.1054	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	82.5	89.1	80.8	84.7	80.0	87.5	87.6	89.7	88.7	85.1	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.881	0.889	0.879	0.884	0.878	0.887	0.887	0.89	0.889	0.884	-	-	-	-	1	NONE/PM17
Eluate Volume	0.64	0.59	0.7	0.65	0.78	0.85	0.8	0.78	0.85	0.74	-	-	-		I	NONE/PM17
рН *	8.18	8.57	8.33	8.46	8.35	8.86	8.46	8.42	8.68	8.38	-	-	-	<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	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<5 15	17 4	<5 <3	<5 <3	<5 <3	<5 7	<5 6	<5 7	6 10	6 <3	1000 800	20000 15000	50000 25000	<5 <3	mg/kg mg/kg	TM38/PM0 TM38/PM0
Chloride #													20000		inging	
																l
																İ

		vestigations	Ireland			Report :	EN12457	2							
	8354-01-1					Solide: V-800 VOC jar 1-2500 place jar T-plastic tub									
	Cornelscourt Barry Sexton					Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub									
	19/1176	011													
J E Sample No.	106-108														
e 2 campie nei															
Sample ID	TP-20														
Depth	1.50													e attached n	
COC No / misc													abbrevi	iations and a	cronyms
Containers	VJT														
Sample Date	21/01/2019														
Sample Type	Soil														
Batch Number	1									Inert	Stable Non-	Hazardous	LOD LOR	Units	Method
Date of Receipt	24/01/2019										reactive				No.
Solid Waste Analysis	0.01														The
Total Organic Carbon # Sum of BTEX	0.24 <0.025									3	- 5	6	<0.02 <0.025	% mg/kg	TM21/PM2 TM31/PM1
Sum of 7 PCBs	<0.025									1	-	-	<0.025	mg/kg	TM31/PM1 TM17/PM8
Mineral Oil	<30									500	-	-	<30	mg/kg	TM5/PM8/PM1
PAH Sum of 6	<0.22									-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64									100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate															-
Arsenic"	<0.025									0.5	2	25	<0.025	mg/kg	TM30/PM1
Barium #	0.05									20	100	300	<0.03	mg/kg	TM30/PM1
Cadmium "	<0.005									0.04	1	5	<0.005	mg/kg	TM30/PM1
Chromium #	<0.015									0.5	10	70	<0.015	mg/kg	TM30/PM1
Copper #	<0.07									2	50	100	<0.07	mg/kg	TM30/PM1
Mercury #	<0.0001									0.01	0.2	2	<0.0001	mg/kg	TM61/PM0 TM30/PM1
Molybdenum <sup>#</sup> Nickel <sup>#</sup>	0.05 <0.02									0.5	10 10	30 40	<0.02 <0.02	mg/kg mg/kg	TM30/PM1
Lead "	<0.05									0.5	10	50	<0.05	mg/kg	TM30/PM1
Antimony #	<0.02									0.06	0.7	5	<0.02	mg/kg	TM30/PM1
Selenium #	<0.03									0.1	0.5	7	<0.03	mg/kg	TM30/PM1
Zinc "	<0.03									4	50	200	<0.03	mg/kg	TM30/PM1
Total Dissolved Solids #	670									4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20									500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.103									-	-	-		kg	NONE/PM1
Dry Matter Content Ratio	87.1									-	-	-	<0.1	%	NONE/PM
Leachant Volume	0.887									-	-	-		I	NONE/PM1
Eluate Volume	0.6									-	-	-		I	NONE/PM1
pH <sup>#</sup>	8.68									-	-	-	<0.01	pH units	TM73/PM1
pri	0.00												\$0.01	pri unito	
Phenol	<0.1									1	-	-	<0.1	mg/kg	TM26/PM
	_												-		
Fluoride	<3									-	-	-	<3	mg/kg	TM173/PM
Sulphate as SO4 #	19									1000	20000	50000	<5	mg/kg	TM38/PM
Chloride "	3									800	15000	25000	<3	mg/kg	TM38/PM
														_	
								1	1	1	1	1	1	1	1

Ground Investigations Ireland
8354-01-19
Cornelscourt
Barry Sexton

Matrix : Solid

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1176	1	TP-01	0.50	1-3	No interpretation possible
19/1176	1	TP-02	0.60	10-12	No interpretation possible
19/1176	1	TP-03	0.50	19-21	No interpretation possible
19/1176	1	TP-04	1.00	28-30	No interpretation possible
19/1176	1	TP-05	0.80	37-39	No interpretation possible
19/1176	1	TP-06	0.50	40-42	No interpretation possible
19/1176	1	TP-06	1.50	43-45	No interpretation possible
19/1176	1	TP-07	0.50	52-54	No interpretation possible
19/1176	1	TP-07	1.50	55-57	No interpretation possible
19/1176	1	TP-07	2.50	58-60	No interpretation possible
19/1176	1	TP-07A	0.50	64-66	No interpretation possible
19/1176	1	TP-07A	1.50	67-69	No interpretation possible
19/1176	1	TP-08	0.50	73-75	No interpretation possible
19/1176	1	TP-08	1.50	76-78	No interpretation possible
19/1176	1	TP-09	0.50	81-83	No interpretation possible
19/1176	1	TP-09	1.50	84-86	No interpretation possible
19/1176	1	TP-14	1.00	94-96	Possible PAH's, lubricating oil & Tarmac/bitumen
19/1176	1	TP-14	2.00	97-99	Possible PAH's, lubricating oil & Tarmac/bitumen
19/1176	1	TP-14	3.00	100-102	Possible PAH's, lubricating oil & Tarmac/bitumen
19/1176	1	TP-20	0.50	103-105	No interpretation possible
19/1176	1	TP-20	1.50	106-108	No interpretation possible

Ground Investigations Ireland 19/01/8354
Cornelscourt
Barry Sexton

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

-

Ryan Butterworth Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	1	TP-01	0.50	2	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-02	0.60	11	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-03	0.50	20	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-04	1.00	29	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-05	0.80	38	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-06	0.50	41	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-06	1.50	44	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD

## Jones Environmental Laboratory

Client Name:
Reference:
Location:

Ground Investigations Ireland 19/01/8354 Cornelscourt

Contact:			Barry Sexton				
J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	1	TP-06	1.50	44	02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-07	0.50	53	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-07	1.50	56	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-07	2.50	59	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-07A	0.50	65	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-07A	1.50	68	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-08	0.50	74	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-08	1.50	77	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-09	0.50	82	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
10/1	1	TP-09	1.50	85	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
19/1176				50		())	

# Jones Environmental Laboratory

Client Name:
Reference:
Location:

Ground Investigations Ireland 19/01/8354 Cornelscourt

Contact	t:		Barry Se	xton			
J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	1	TP-09	1.50	85	02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-14	1.00	95	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-14	2.00	98	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-14	3.00	101	02/02/2019	General Description (Bulk Analysis)	Soil/sTONE
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-20	0.50	104	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD
19/1176	1	TP-20	1.50	107	02/02/2019	General Description (Bulk Analysis)	Soil/Stone
					02/02/2019	Asbestos Fibres	NAD
					02/02/2019	Asbestos ACM	NAD
					02/02/2019	Asbestos Type	NAD
					02/02/2019	Asbestos Level Screen	NAD

Client Name:Ground Investigations IrelandReference:8354-01-19Location:CornelscourtContact:Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason						
	No deviating sample report results for job 19/1176											
					and in this report. If no complex are listed it is because none were deviating							

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.

### NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 19/1176

#### SOILS

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.

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. 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.

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.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (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.

#### **DEVIATING SAMPLES**

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

#### 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 UKAS requirement 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.

#### **REPORTS FROM THE SOUTH AFRICA LABORATORY**

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

### ABBREVIATIONS and ACRONYMS USED

SO17025 (UKAS Ref No. 4225) accredited - UK.
SO17025 (SANAS Ref No.T0729) accredited - South Africa.
dicates analyte found in associated method blank.
ilution required.
ICERTS accredited.
ot applicable
o Asbestos Detected.
one Detected (usually refers to VOC and/SVOC TICs).
o Determination Possible
alibrated against a single substance
urrogate recovery outside performance criteria. This may be due to a matrix effect.
esults expressed on as received basis.
QC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
esult outside calibration range, results should be considered as indicative only and are not accredited.
nalysis subcontracted to an Exova Jones Environmental approved laboratory.
amples are dried at 35°C ±5°C
uspected carry over
imit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
latrix Effect
o Fibres Detected
QC Sample
lank Sample
lient Sample
rip Blank Sample
outside Calibration Range

### Appendix - Methods used for WAC (2003/33/EC)

#### JE Job No.: 19/1176

Leachate tests	
	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and
10l/kg; 4mm	filtered over 0.45 µm membrane filter.
Eluate analysis	
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ва	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Мо	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 1484
TDS	I.S. EN 15216
Compositional	analysis
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
BTEX	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 ( ICP-OES)
Other	
-	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fisch
Dry matter	titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to $550 \pm 25$ °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range

\*If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS \*\*PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

\*\*\*Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

### Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	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 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 8270. 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 160.3 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	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes

# Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	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
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 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
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	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 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. 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 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 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	PM17	Modified method EN12457-2 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.			AR	

# Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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 and BS1377.			AR	



Ground Investigations Ireland Catherinestown House

Hazelhatch Road

Newcastle Co. Dublin Ireland

# Exova Jones Environmental

Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

Unit 3 Deeside Point Zone 3 Deeside Industrial Park Deeside CH5 2UA

### Tel: +44 (0) 1244 833780 Fax: +44 (0) 1244 833781



Attention :	Barry Sexton
Date :	11th February, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/1176 Batch 2
Location :	Cornelscourt
Date samples received :	24th January, 2019
Status :	Final report
Issue :	1

Forty two samples were received for analysis on 24th January, 2019 of which forty two 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.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Phil Sommerton BSc Project Manager

Client Name:
Reference:
Location:
Contact:
JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176												
J E Sample No.	115-117	118-120	121-123	124-126	127-129	130-132	133-135	136-138	139-141	142-144			
Sample ID	WS01	WS01	WS01	WS02	WS02	WS02	WS03	WS03	WS03	WS04			
Depth	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Ploase co	otes for all	
COC No / misc												cronyms	
Containers	VJT												
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil												
Batch Number	2	2	2	2	2	2	2	2	2	2			Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	LOD/LOR	Units	No.
Antimony	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Barium #	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Cadmium #	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Chromium <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Copper <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
Mercury <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Molybdenum <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>	_	_	_	_	-	-	_	-	_	_	<1	mg/kg	TM30/PM15
		-	-	-						-			TM30/PM15
Zinc <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	< 0.03	mg/kg	TM4/PM8
Acenaphthene #	-	-	-	-	-	-	-	-	-	-	< 0.05	mg/kg	TM4/PM8
Fluorene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	< 0.03	mg/kg	TM4/PM8
Anthracene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Fluoranthene#	-	-	-	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Pyrene #	-	-	-	-	-	-	-	-	-	-	< 0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	-	-	-	-	-	-	-	-	-	<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	-	-	-	-	-	-	-	-	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene#	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Coronene	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 6 Total <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<0.22	mg/kg	TM4/PM8
PAH 17 Total	-	-	-	-	-	-	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	-	-	_	-	-	-	-	-	-	<0	%	TM4/PM8
consiguto /o recovery											~~	70	
Mineral Oil (C10-C40)	-	-	-	-	-	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE JOD NO.:	19/11/6										_				
J E Sample No.	115-117	118-120	121-123	124-126	127-129	130-132	133-135	136-138	139-141	142-144					
Sample ID	WS01	WS01	WS01	WS02	W \$02	W\$02	WS03	WS03	WS03	WS04					
Depth	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Plaasa sa	Please see attached notes for a abbreviations and acronyms			
COC No / misc															
Containers	VJT														
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019					
Sample Type	Soil														
Batch Number	2	2	2	2	2	2	2	2	2	2					
Date of Receipt											LOD/LOR	Units	Method No.		
TPH CWG	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019					
Aliphatics															
>C5-C6 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>C6-C8 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>C10-C12#	<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		
>C12-C16 <sup>#</sup>	<4	<4	<4	21	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16		
>C16-C21 #	<7	<7	<7	60	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16		
>C21-C35#	<7	<7	<7	419	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16		
>C35-C40	<7	<7	<7	127	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16		
Total aliphatics C5-40	<26	<26	<26	627	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM38/PM8/PM12/PM16		
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>C10-C25	<10	<10	<10	172	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16		
>C25-C35	<10	<10	<10	334	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16		
Aromatics															
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>EC7-EC8 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>EC8-EC10 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>EC10-EC12#	<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#	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16		
>EC16-EC21 #	<7	<7	<7	<7 <7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16 TM5/PM8/PM16		
>EC21-EC35 <sup>#</sup> >EC35-EC40	<7 <7	<7 <7	<7 <7	<7	<7 <7    mg/kg	TM5/PM8/PM16 TM5/PM8/PM16									
>EC33-EC40 Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg mg/kg	TM5/TM38/PM8/PM12/PM16		
Total aliphatics and aromatics(C5-40)	<52	<52	<52	627	<52	<52	<52	<52	<52	<52	<52	mg/kg	TM5/TM38/PM8/PM12/PM16		
>EC6-EC10 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12		
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16		
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16		
MTBE <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12		
Benzene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12		
Toluene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12		
Ethylbenzene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12		
m/p-Xylene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12		
o-Xylene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12		
DOD 00 #											-	4	Th47/01/0		
PCB 28 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 52#	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 101 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 118 <sup>#</sup> PCB 138 <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<5 <5	ug/kg ug/kg	TM17/PM8 TM17/PM8		
PCB 138" PCB 153 <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<5	ug/kg ug/kg	TM17/PM8 TM17/PM8		
PCB 153 PCB 180 <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
Total 7 PCBs <sup>#</sup>	-	-	-	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8		
I UIDI / FUDS		-	-	-	-	-	-	-	-	-	<00	uy/Kÿ	11111/1/1118		

Client Name:
Reference:
Location:
Contact:
JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176														
J E Sample No.	115-117	118-120	121-123	124-126	127-129	130-132	133-135	136-138	139-141	142-144					
Sample ID	WS01	WS01	WS01	W \$02	WS02	WS02	WS03	WS03	WS03	WS04					
Depth	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Please se	otes for all			
COC No / misc												abbreviations and acronym			
Containers	VJT														
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019					
Sample Type	Soil		n												
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method		
Date of Receipt													No.		
Natural Moisture Content	13.1	13.4	15.9	51.1	13.7	13.5	17.0	15.6	15.1	22.7	<0.1	%	PM4/PM0		
Moisture Content (% Wet Weight)	-	-	-	-	-	-	-	-	-	-	<0.1	%	PM4/PM0		
Hexavalent Chromium #	-	-	-	-	-	-	-	-	-	-	<0.3	mg/kg	TM38/PM20		
Chromium III	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	NONE/NONE		
Total Organic Carbon #	-	-	-	-	-	-	-	-	-	-	<0.02	%	TM21/PM24		
рН#	-	-	-	-	-	-	-	-	-	-	<0.01	pH units	TM73/PM11		
Mass of raw test portion	-	-	-	-	-	-	-	-	-	-		kg	NONE/PM17		
Mass of dried test portion	-	-	-	-	-	-	-	-	-	-		kg	NONE/PM17		
	1	I	1	1	1	1	1	1		I	1				

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE JOD NO.:	19/11/6														
J E Sample No.	145-147	148-150	151-153	154-156	157-159	160-162	163-165	166-168	169-171	172-174					
Sample ID	WS04	WS04	WS04	WS05	WS05	WS05	WS06	WS06	WS06	WS07					
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Diagon on	a attached a	atao far all		
COC No / misc												Please see attached notes for abbreviations and acronyms			
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT					
Sample Date									22/01/2019						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
											ļ				
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method No.		
Date of Receipt					24/01/2019	24/01/2019	24/01/2019		24/01/2019	24/01/2019		-			
Antimony	2	2	<1	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15		
Arsenic <sup>#</sup>	9.8	12.1	3.8	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15		
Barium <sup>#</sup>	74	74	34	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15 TM30/PM15		
Cadmium <sup>#</sup>	1.6	1.7	0.1	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15 TM30/PM15		
Chromium <sup>#</sup> Copper <sup>#</sup>	64.5 29	44.3 29	72.0 6	-	-	-	-	-	-	-	<0.5 <1	mg/kg	TM30/PM15 TM30/PM15		
Copper Lead <sup>#</sup>	29 16	29	6	-	-	-	-	-	-	-	<1	mg/kg mg/kg	TM30/PM15		
Lead Mercury#	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15		
Molybdenum <sup>#</sup>	3.7	3.6	4.1	_	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15		
Nickel <sup>#</sup>	36.0	36.4	7.2	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM15		
Selenium <sup>#</sup>	<1	1	<1	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15		
Zinc <sup>#</sup>	77	103	37	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15		
-															
PAH MS															
Naphthalene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8		
Acenaphthylene	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8		
Acenaphthene #	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8		
Fluorene #	0.18	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8		
Phenanthrene <sup>#</sup>	0.31	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8		
Anthracene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8		
Fluoranthene#	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8		
Pyrene #	0.05	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8		
Benzo(a)anthracene #	<0.06	<0.06	<0.06	-	-	-	-	-	-	-	<0.06	mg/kg	TM4/PM8		
Chrysene <sup>#</sup>	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8		
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	-	-	-	-	-	-	-	<0.07	mg/kg	TM4/PM8		
Benzo(a)pyrene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8		
Indeno(123cd)pyrene <sup>#</sup>	<0.04 <0.04	<0.04 <0.04	<0.04 <0.04	-	-	-	-	-	-	-	<0.04 <0.04	mg/kg	TM4/PM8 TM4/PM8		
Dibenzo(ah)anthracene *	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg mg/kg	TM4/PM8		
Benzo(ghi)perylene <sup>#</sup> Coronene	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8		
PAH 6 Total <sup>#</sup>	<0.22	<0.22	<0.22	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8		
PAH 17 Total	<0.64	<0.64	<0.64	-	-	-	-	-	-	-	<0.64	mg/kg	TM4/PM8		
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8		
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8		
Benzo(j)fluoranthene	<1	<1	<1	-	-	-	-	-	-	-	<1	mg/kg	TM4/PM8		
PAH Surrogate % Recovery	97	87	100	-	-	-	-	-	-	-	<0	%	TM4/PM8		
Mineral Oil (C10-C40)	673	<30	<30	-	-	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16		

Client Name: Reference: Location: Contact: JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176														
J E Sample No.	145-147	148-150	151-153	154-156	157-159	160-162	163-165	166-168	169-171	172-174					
Sample ID	WS04	WS04	WS04	WS05	WS05	WS05	WS06	WS06	WS06	WS07					
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Please se	Please see attached notes for			
COC No / misc												cronyms			
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT					
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	2	2	2	2	2	2	2	2	2	2			Method		
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	LOD/LOR	Units	No.		
TPH CWG															
Aliphatics															
>C5-C6 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12		
>C6-C8 <sup>#</sup>	<0.1	<0.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12		
>C8-C10	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12		
>C10-C12 <sup>#</sup>	73.2	<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		
>C12-C16 <sup>#</sup>	221	<4	12	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16		
>C16-C21 #	265	<7	10	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16		
>C21-C35#	114	<7	<7	<7	<7	<7	<7	<7	109	60	<7	mg/kg	TM5/PM8/PM16		
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	13	<7	<7	mg/kg	TM5/PM8/PM16		
Total aliphatics C5-40 >C6-C10	673 <0.1	<26 <0.1	<26 1.0	<26 <0.1	<26	<26 <0.1	<26 <0.1	<26	122 <0.1	60 <0.1 <sup>SV</sup>	<26 <0.1	mg/kg			
>C10-C25	673	<10	25	<10	<0.1 <10	<10	<10	<0.1 <10	29	<0.1	<10	mg/kg mg/kg	TM36/PM12 TM5/PM8/PM16		
>C25-C35	16	<10	<10	<10	<10	<10	<10	<10	86	54	<10	mg/kg	TM5/PM8/PM16		
Aromatics	10	<10	<10	<10	<10	<10	<10	<10	00	54	<10	ilig/kg			
>C5-EC7 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12		
>EC7-EC8 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12		
>EC8-EC10 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12		
>EC10-EC12#	8.2	<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 #	92	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16		
>EC16-EC21 #	164	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16		
>EC21-EC35#	74	<7	<7	<7	<7	<7	<7	<7	<7	78	<7	mg/kg	TM5/PM8/PM16		
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	16	<7	mg/kg	TM5/PM8/PM16		
Total aromatics C5-40	338	<26	<26	<26	<26	<26	<26	<26	<26	94	<26	mg/kg	TM5/TM38/PM8/PM12/PM16		
Total aliphatics and aromatics(C5-40)	1011	<52	<52	<52	<52	<52	<52	<52	122	154	<52	mg/kg	TM5/TM38/PM8/PM12/PM16		
>EC6-EC10#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <sup>SV</sup>	<0.1	mg/kg	TM36/PM12		
>EC10-EC25	343	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16		
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	71	<10	mg/kg	TM5/PM8/PM16		
MTBE <sup>#</sup>	<5	15	79	<5	<5	<5	<5	<5	<5	<5 <sup>\$V</sup>	<5	ug/kg	TM31/PM12		
Benzene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5 <5 <sup>SV</sup>	<5	ug/kg	TM31/PM12		
Toluene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5 <5 <sup>SV</sup>	<5	ug/kg	TM31/PM12		
Ethylbenzene <sup>#</sup>	<5	<5	17	<5	<5	<5	<5	<5	<5	<5 <sup>SV</sup>	<5	ug/kg	TM31/PM12		
m/p-Xylene #	<5	<5	17	<5	<5	<5	<5	<5	<5	<5 <sup>SV</sup>	<5	ug/kg	TM31/PM12		
o-Xylene *	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5 <sup>SV</sup>	<5	ug/kg	TM31/PM12		
PCB 28 <sup>#</sup>	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 52#	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 101 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 118 <sup>#</sup>	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 138 <sup>#</sup>	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 153 <sup>#</sup>	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
PCB 180 <sup>#</sup>	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8		
Total 7 PCBs <sup>#</sup>	<35	<35	<35	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8		

Client Name:
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#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE JOD NO.:	19/11/6													
J E Sample No.	145-147	148-150	151-153	154-156	157-159	160-162	163-165	166-168	169-171	172-174				
Sample ID	WS04	WS04	WS04	WS05	WS05	WS05	WS06	WS06	WS06	WS07				
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Disease			
COC No / misc												Please see attached notes for abbreviations and acronyms		
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT				
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	2	2	2	2	2	2	2	2	2	2			Method	
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	LOD/LOR	Units	No.	
Natural Moisture Content	13.8	13.3	8.2	19.8	14.4	14.6	15.4	18.9	15.0	23.1	<0.1	%	PM4/PM0	
Moisture Content (% Wet Weight)	12.1	11.8	7.6	-	-	-	-	-	-	-	<0.1	%	PM4/PM0	
													Th 400 /Dh 400	
Hexavalent Chromium # Chromium III	<0.3 64.5	<0.3 44.3	<0.3 72.0	-	-	-	-	•	•	-	<0.3 <0.5	mg/kg mg/kg	TM38/PM20 NONE/NONE	
	54.5		12.0								-0.0	g/ivg	11 JENIONE	
Total Organic Carbon <sup>#</sup>	0.34	0.26	0.14	-	-	-	-	-	-	-	<0.02	%	TM21/PM24	
рН *	8.57	8.61	9.20	-	-	-	-	-	-	-	<0.01	pH units	TM73/PM11	
Mass of raw test portion	0.1029	0.1046	0.097	-	-	-	-	-	-	-		kg	NONE/PM17	
Mass of dried test portion	0.09	0.09	0.09	-	-	-	-	-	-	-		kg	NONE/PM17	

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Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

	19/11/6													
J E Sample No.	175-177	178-180	181-183	184-186	187-189	190-192	193-195	196-198	199-201	202-204				
Sample ID	WS07	WS07	WS07	WS08	WS08	WS08	WS09	WS09	WS09	WS10				
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00		Please see attached notes for		
COC No / misc												otes for all cronyms		
Containers	VJT													
Sample Date	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019				
Sample Type	Soil													
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method	
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019		Units	No.	
Antimony	2	2	1	-	2	2	-	-	-	-	<1	mg/kg	TM30/PM15	
Arsenic <sup>#</sup>	11.3	8.4	7.8	-	10.0	9.8	-	-	-	-	<0.5	mg/kg	TM30/PM15	
Barium <sup>#</sup>	67	61	48	-	51	70	-	-	-	-	<1	mg/kg	TM30/PM15	
Cadmium <sup>#</sup>	2.1	1.7	1.3	-	1.8	1.6	-	-	-	-	<0.1	mg/kg	TM30/PM15	
Chromium <sup>#</sup>	48.0	54.9	67.5	-	52.9	59.8	-	-	-	-	<0.5	mg/kg	TM30/PM15	
Copper <sup>#</sup>	35	28	17	-	21	27	-	-	-	-	<1	mg/kg	TM30/PM15	
Lead <sup>#</sup>	18	16	12	-	14	18	-	-	-	-	<5	mg/kg	TM30/PM15	
Lead Mercury#	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	<0.1		TM30/PM15	
												mg/kg		
Molybdenum #	4.0	3.2	3.1	-	3.3	3.6	-	-	-	-	<0.1	mg/kg	TM30/PM15	
Nickel <sup>#</sup>	43.2	34.8	27.6	-	26.4	33.4	-	-	-	-	<0.7	mg/kg	TM30/PM15	
Selenium <sup>#</sup>	2	<1	<1	-	<1	<1	-	-	-	-	<1	mg/kg	TM30/PM15	
Zinc <sup>#</sup>	106	76	66	-	76	80	-	-	-	-	<5	mg/kg	TM30/PM15	
PAH MS														
Naphthalene #	<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	0.08	-	-	-	-	<0.03	mg/kg	TM4/PM8	
Acenaphthene #	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	-	-	-	<0.05	mg/kg	TM4/PM8	
Fluorene <sup>#</sup>	<0.04	<0.04	<0.04	-	<0.04	0.14	-	-	-	-	<0.04	mg/kg	TM4/PM8	
Phenanthrene <sup>#</sup>	<0.03	<0.03	<0.03	-	< 0.03	0.27	-	-	-	-	< 0.03	mg/kg	TM4/PM8	
Anthracene <sup>#</sup>	< 0.04	<0.04	<0.04	-	< 0.04	< 0.04	-	-	-	-	< 0.04	mg/kg	TM4/PM8	
Fluoranthene <sup>#</sup>	<0.03	<0.03	<0.03	-	<0.03	<0.03	-	-	-	-	< 0.03	mg/kg	TM4/PM8	
Pyrene <sup>#</sup>	<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		TM4/PM8	
								-	-	-		mg/kg		
Chrysene #	<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	mg/kg	TM4/PM8	
Benzo(a)pyrene <sup>#</sup>	<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	mg/kg	TM4/PM8	
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	-	<0.04	<0.04	-	-	-	-	<0.04	mg/kg	TM4/PM8	
Benzo(ghi)perylene <sup>#</sup>	<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	mg/kg	TM4/PM8	
PAH 6 Total <sup>#</sup>	<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	mg/kg	TM4/PM8	
Benzo(b)fluoranthene	<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	mg/kg	TM4/PM8	
Benzo(j)fluoranthene	<1	<1	<1	-	<1	<1	-	-	-	-	<1	mg/kg	TM4/PM8	
PAH Surrogate % Recovery	98	91	99	-	95	98	-	-	-	-	<0	%	TM4/PM8	
Mineral Oil (C10-C40)	<30	143	<30	-	<30	447	-	-	-	-	<30	mg/kg	TM5/PM8/PM16	
	-30	. +0									-50			
						<u> </u>								

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE JOD NO.:	19/11/6												
J E Sample No.	175-177	178-180	181-183	184-186	187-189	190-192	193-195	196-198	199-201	202-204			
Sample ID	WS07	WS07	WS07	WS08	WS08	WS08	WS09	WS09	WS09	WS10			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Diagon on	o ottoobod n	otoo for all
COC No / misc												e attached n ations and a	
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date													
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method No.
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
TPH CWG													
Aliphatics	<0.1	0.6	1.7	<0.1	<0.1	1.3	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C5-C8 >C6-C8 <sup>#</sup>	<0.1	2.1	4.1	0.5	<0.1	6.5	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	2.4	2.9	0.4	<0.1	8.9	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12#	<0.2	35.9	<0.2	<0.2	<0.2	89.0	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 <sup>#</sup>	<4	49	<4	<4	<4	160	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	48	<7	<7	<7	152	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35#	<7	10	<7	<7	<7	46	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	148	<26	<26	<26	464	<26	<26	<26	<26	<26	mg/kg	TM5/TM38/PM8/PM12/PM16
>C6-C10 >C10-C25	<0.1 <10	4.5 160	7.0 <10	0.9 <10	<0.1 <10	15.4 447	<0.1 <10	<0.1 <10	<0.1 <10	<0.1 <10	<0.1 <10	mg/kg mg/kg	TM36/PM12 TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics	410	410	410	410	110	110	110	110	110	110	110		
>C5-EC7#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10#	<0.1	0.6	0.3	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12#	<0.2	17.0	<0.2	<0.2	<0.2	61.8	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	23	<4	<4	<4	98	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	22	<7	<7	<7	106	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 # >EC35-EC40	<7 <7	<7 <7	<7 <7	<7 <7	<7 <7	31 <7	<7 <7	<7 <7	<7 <7	<7 <7	<7 <7	mg/kg	TM5/PM8/PM16 TM5/PM8/PM16
Total aromatics C5-40	<26	63	<26	<26	<26	297	<26	<26	<26	<26	<26	mg/kg mg/kg	TMS/TM38/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	211	<52	<52	<52	761	<52	<52	<52	<52	<52	mg/kg	TM5/TM38/PM8/PM12/PM16
>EC6-EC10#	<0.1	0.6	0.3	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	68	<10	<10	<10	280	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE#	<5	261	798	41	<5	755	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12 TM31/PM12
Toluene <sup>#</sup> Ethylbenzene <sup>#</sup>	<5 <5	<5 100	<5 80	<5 10	<5 <5	<5 49	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	ug/kg ug/kg	TM31/PM12 TM31/PM12
m/p-Xylene #	<5	441	257	21	<5	209	<5	<5	<5	<5	<5	ug/kg	TM31/PM12 TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 <sup>#</sup>	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52#	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 <sup>#</sup>	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 <sup>#</sup>	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 <sup>#</sup> PCB 180 <sup>#</sup>	<5	<5	<5 <5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8 TM17/PM8
PCB 180 " Total 7 PCBs <sup>#</sup>	<5 <35	<5 <35	<5 <35	-	<5 <35	<5 <35	-	-	-	-	<5 <35	ug/kg ug/kg	TM17/PM8 TM17/PM8
TUIAT / PUBS	<30	<30	<30	-	<30	<30	-	-	-	-	<30	ug/Kg	TIVIT7/PIVI8

Client Name:
Reference:
Location:
Contact:
JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

	175-177	178-180	181-183	184-186	187-189	190-192	193-195	196-198	199-201	202-204			
Sample ID													
	WS07	WS07	WS07	WS08	WS08	WS08	WS09	WS09	WS09	WS10			
Depth 1.	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and ad	ronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date 22	2/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method No.
Date of Receipt 24													
Natural Moisture Content Moisture Content (% Wet Weight)	18.3 15.4	14.6 12.7	10.7 9.7	19.3 -	17.4 14.8	14.4 12.6	- 13.7	- 14.2	- 14.0	- 23.7	<0.1 <0.1	%	PM4/PM0 PM4/PM0
······································	10.1		0.1		1.110	12.10						,0	
Hexavalent Chromium #	<0.3	<0.3	<0.3	-	<0.3	<0.3	-	-	-	-	<0.3	mg/kg	TM38/PM20
Chromium III	48.0	54.9	67.5	-	52.9	59.8	-	-	-	-	<0.5	mg/kg	NONE/NONE
Total Organic Carbon <sup>#</sup>	0.38	0.26	0.19	-	0.25	0.29	-	-	-	-	<0.02	%	TM21/PM24
рН#	8.69	7.69	8.44	-	8.66	8.23	-	-	-	-	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1046	0.1027	0.0988	-	0.1008	0.102	-	-	-	-		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	-	0.09	0.09	-	-	-	-		kg	NONE/PM17

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176												
J E Sample No.	205-207	208-210	211-213	214-216	217-219	220-222	223-225	226-228	229-231	232-234			
Sample ID	WS10	WS10	WS10	WS11	WS11	WS11	WS12	WS12	WS12	WS13			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Blassa as	e attached n	atao far all
COC No / misc												e attached h ations and a	
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	21/01/2019	21/01/2019		21/01/2019				22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
											LOD/LOR	Units	Method No.
Date of Receipt	-	24/01/2019 2	24/01/2019	24/01/2019	-	24/01/2019	-	24/01/2019	24/01/2019	24/01/2019	<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	-	12.1	10.1	-	_	-	_	_	-	-	<0.5	mg/kg	TM30/PM15
	-	74	66	_	-	-	-	-	-	-	<1		TM30/PM15
Barium <sup>#</sup>	-	2.1	1.9	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Cadmium <sup>#</sup> Chromium <sup>#</sup>	-	50.8	51.2	-	-	-	-	-	-	-	<0.1	mg/kg mg/kg	TM30/PM15
Copper <sup>#</sup>	-	37	29	-	-	-	-	-	-	-	<1		TM30/PM15
	-	21	29	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	-			-	-	-	-	-	-	-		mg/kg	TM30/PM15
Mercury <sup>#</sup>		<0.1	<0.1		-						<0.1	mg/kg	TM30/PM15 TM30/PM15
Molybdenum <sup>#</sup> Nickel <sup>#</sup>	-	4.8	4.2	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
	-	47.8	37.7 1	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>		1		-		-	-				<1	mg/kg	
Zinc <sup>#</sup>	-	104	83	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Fluorene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene <sup>#</sup>	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Anthracene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Pyrene <sup>#</sup>	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	<0.06	<0.06	-	-	-	-	-	-	-	<0.06	mg/kg	TM4/PM8
Chrysene #	-	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	<0.07	<0.07	-	-	-	-	-	-	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene#	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Coronene	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 6 Total <sup>#</sup>	-	<0.22	<0.22	-	-	-	-	-	-	-	<0.22	mg/kg	TM4/PM8
PAH 17 Total	-	<0.64	<0.64	-	-	-	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	-	<1	<1	-	-	-	-	-	-	-	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	95	93	-	-	-	-	-	-	-	<0	%	TM4/PM8
Mineral Oil (C10-C40)	-	<30	100	-	-	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16
			100	_	_						-00	iiig/kg	

Client Name: Reference: Location: Contact: JE Job No.: Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176										_		
J E Sample No.	205-207	208-210	211-213	214-216	217-219	220-222	223-225	226-228	229-231	232-234			
Sample ID	WS10	WS10	WS10	WS11	WS11	WS11	WS12	WS12	WS12	WS13			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			No.
TPH CWG													
Aliphatics													
>C5-C6 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	10.4	13.9	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 <sup>#</sup>	<0.1	<0.1	0.1	<0.1	33.4	63.5**	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	0.5	<0.1	<0.1	34.1**	59.8 <sup>++</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 <sup>#</sup>	<0.2	<0.2	15.2	<0.2	203.9	349.0	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 <sup>#</sup>	<4	<4	45	<4	365	613	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	40	<7	364	642	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	<7	115	220	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7 <26	<7 <26	<7 100	<7 <26	<7	<7	<7 <26	<7 <26	<7 <26	<7 <26	<7 <26	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 >C6-C10	<26	<26 0.5	0.1	<26	1126 67.5	1961 123.3	<26	<26	<26	<26	<26	mg/kg	TM36/PM12
>C10-C25	<10	<10	104	<10	1027	1758	<10	<10	<10	<10	<10	mg/kg mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	21	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics	<10	<10	<10	<10	<10	21		<10	<10	<10	<10	ilig/kg	
>C5-EC7 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	13.7**	30.1**	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12#	<0.2	<0.2	4.2	<0.2	132.2	231.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16#	<4	<4	26	<4	190	325	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	39	<7	229	384	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35#	<7	<7	11	<7	92	132	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	80	<26	657	1103	<26	<26	<26	<26	<26	mg/kg	TM5/TM38/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	180	<52	1783	3064	<52	<52	<52	<52	<52	mg/kg	TM5/TM38/PM8/PM12/PM16
>EC6-EC10#	<0.1	<0.1	<0.1	<0.1	13.9	30.4	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	70	<10	630	1068	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	13	16	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
4		_	_	_			_	_	_	_	_		
MTBE <sup>#</sup>	<5	<5	<5	<5	2907	5007	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene <sup>#</sup>	<5	<5	<5	<5	282	395	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene <sup>#</sup>	<5	<5	<5	<5	3397	8582	<5	<5	<5	7	<5	ug/kg	TM31/PM12 TM31/PM12
m/p-Xylene #	<5 <5	<5 <5	7 <5	<5 <5	10263 <5	21432 <5	11 <5	11 <5	<5 <5	13 <5	<5 <5	ug/kg ug/kg	TM31/PM12 TM31/PM12
o-Xylene <sup>#</sup>	<0	<0	<0	<0	<0	<0	<5	<0	<0	<0	<0	ug/kg	TWG I/FIVITZ
PCB 28 <sup>#</sup>	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 28	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 <sup>#</sup>	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 <sup>#</sup>	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 <sup>#</sup>	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 <sup>#</sup>	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs <sup>#</sup>	-	<35	<35	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8

Client Name:
Reference:
Location:
Contact:
JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : Solid

JE Job No.:	19/1176												
J E Sample No.	205-207	208-210	211-213	214-216	217-219	220-222	223-225	226-228	229-231	232-234			
Sample ID	WS10	WS10	WS10	WS11	WS11	WS11	WS12	WS12	WS12	WS13			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method
Date of Receipt													No.
Natural Moisture Content Moisture Content (% Wet Weight)	- 14.5	15.3 13.3	13.4 11.8	- 20.9	- 14.0	15.6 -	- 20.6	- 12.8	- 14.1	- 10.9	<0.1 <0.1	%	PM4/PM0 PM4/PM0
Noistale Content (76 Wet Weight)	-	10.0	11.0	_	_	-	_	_	_	_	<0.1	70	1 101-0/1 1010
Hexavalent Chromium #	-	<0.3	<0.3	-	-	-	-	-	-	-	<0.3	mg/kg	TM38/PM20
Chromium III	-	50.8	51.2	-	-	-	-	-	-	-	<0.5	mg/kg	NONE/NONE
Total Organic Carbon <sup>#</sup>	-	0.34	0.26	-	-	-	-	-	-	-	<0.02	%	TM21/PM24
рН#	-	8.18	8.19	-	-	-	-	-	-	-	<0.01	pH units	TM73/PM11
Mass of raw test portion	-	0.1062	0.1024	-	-	-	-	-	-	-		kg	NONE/PM17
Mass of dried test portion	-	0.09	0.09	-	-	-	-	-	-	-		kg	NONE/PM17
			-			-				-			·

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176 Report : Solid

	13/11/0						-		
J E Sample No.	235-237	238-240							
Sample ID	WS13	WS13							
Depth	1.00-2.00	2.00-3.00					Disease		
COC No / misc								e attached n ations and a	
Containers		VJT							
	VJT								
Sample Date		22/01/2019							
Sample Type	Soil	Soil							i
Batch Number	2	2					LOD/LOR	Units	Method
Date of Receipt	24/01/2019	24/01/2019							No.
Antimony	-	-					<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	-	-					<0.5	mg/kg	TM30/PM15
Barium <sup>#</sup>	-	-					<1	mg/kg	TM30/PM15
Cadmium <sup>#</sup>	-	-					<0.1	mg/kg	TM30/PM15 TM30/PM15
Chromium <sup>#</sup>	-	-					<0.5	mg/kg	TM30/PM15 TM30/PM15
Copper <sup>#</sup> Lead <sup>#</sup>	-	-					<1 <5	mg/kg mg/kg	TM30/PM15 TM30/PM15
Mercury <sup>#</sup>	-	_					<0.1	mg/kg	TM30/PM15
Molybdenum <sup>#</sup>	-	-					<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	-	-					<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>	-	-					<1	mg/kg	TM30/PM15
Zinc <sup>#</sup>	-	-					<5	mg/kg	TM30/PM15
PAH MS									
Naphthalene #	-	-					<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	-					<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	-					<0.05	mg/kg	TM4/PM8
Fluorene <sup>#</sup>	-	-					<0.04	mg/kg	TM4/PM8
Phenanthrene <sup>#</sup> Anthracene <sup>#</sup>	-	-					<0.03 <0.04	mg/kg mg/kg	TM4/PM8 TM4/PM8
Fluoranthene #	-	_					<0.04	mg/kg	TM4/PM8
Pyrene #	-	-					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	-					<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	-	-					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	-					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene <sup>#</sup>	-	-					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene#	-	-					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	-					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	-					<0.04	mg/kg	TM4/PM8
Coronene	-	-					<0.04	mg/kg	TM4/PM8
PAH 6 Total <sup>#</sup>	-	-					<0.22	mg/kg	TM4/PM8
PAH 17 Total Benzo(b)fluoranthene	-	-					<0.64 <0.05	mg/kg mg/kg	TM4/PM8 TM4/PM8
Benzo(k)fluoranthene	-	-					<0.03	mg/kg	TM4/PM8
Benzo(j)fluoranthene	-	-					<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	-					<0	%	TM4/PM8
Mineral Oil (C10-C40)	-	-					<30	mg/kg	TM5/PM8/PM16

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

Report : Solid

JE 300 NO	19/11/0						_		
J E Sample No.	235-237	238-240							
Sample ID	WS13	WS13							
Depth	1.00-2.00	2.00-3.00							
COC No / misc	1100 2100	2.00 0.00						e attached n ations and a	
Containers	VJT	VJT							
Sample Date	22/01/2019	22/01/2019							
Sample Type	Soil	Soil							
Batch Number	2	2							Method
Date of Receipt	24/01/2019	24/01/2019					LOD/LOR	Units	No.
TPH CWG									
Aliphatics									
>C5-C6 <sup>#</sup>	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C6-C8 *	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C12 <sup>#</sup>	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 <sup>#</sup>	<4	<4					<4	mg/kg	TM5/PM8/PM16 TM5/PM8/PM16
>C16-C21 # >C21-C35 #	<7 <7	<7 <7					<7 <7	mg/kg mg/kg	TM5/PM8/PM16 TM5/PM8/PM16
>C35-C40	<7	<7					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26					<26	mg/kg	TM5/TM38/PM8/PM12/PM16
>C6-C10	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10					<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10					<10	mg/kg	TM5/PM8/PM16
Aromatics									
>C5-EC7 #	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC7-EC8#	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC8-EC10 <sup>#</sup>	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC10-EC12#	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 <sup>#</sup> >EC16-EC21 <sup>#</sup>	<4 <7	<4 <7					<4 <7	mg/kg	TM5/PM8/PM16 TM5/PM8/PM16
>EC21-EC35#	<7	<7					<7	mg/kg mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7					<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26					<26	mg/kg	TM5/TM38/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52					<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10#	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10					<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10					<10	mg/kg	TM5/PM8/PM16
MTBE <sup>#</sup>	<5	<5					<5	ug/kg	TM31/PM12
Benzene <sup>#</sup>	<5	<5					<5	ug/kg	TM31/PM12
Toluene <sup>#</sup>	<5	<5					<5	ug/kg	TM31/PM12 TM31/PM12
Ethylbenzene <sup>#</sup> m/p-Xylene <sup>#</sup>	<5 <5	<5 <5					<5 <5	ug/kg ug/kg	TM31/PM12 TM31/PM12
o-Xylene <sup>#</sup>	<5	<5					<5	ug/kg	TM31/PM12
		-					_	- 5- 5	
PCB 28 <sup>#</sup>	-	-					<5	ug/kg	TM17/PM8
PCB 52#	-	-					<5	ug/kg	TM17/PM8
PCB 101 #	-	-					<5	ug/kg	TM17/PM8
PCB 118 <sup>#</sup>	-	-					<5	ug/kg	TM17/PM8
PCB 138 <sup>#</sup>	-	-					<5	ug/kg	TM17/PM8
PCB 153 <sup>#</sup>	-	-					<5	ug/kg	TM17/PM8
PCB 180 <sup>#</sup>	-	-					<5	ug/kg	TM17/PM8
Total 7 PCBs <sup>#</sup>	-	-					<35	ug/kg	TM17/PM8

Reference: Location: Contact:	Ground In 8354-01-1 Cornelsco Barry Sex 19/1176	ourt	ns Ireland			Report : Solids: V=	<b>Solid</b> 60g VOC jai	r, J=250g gl	ass jar, T=p	lastic tub		
J E Sample No.	235-237	238-240								1		
Sample ID	WS13	WS13										
Depth	1.00-2.00	2.00-3.00								Disease		
COC No / misc											e attached n ations and a	
Containers	VJT	VJT										
Sample Date												
Sample Type		Soil										
Batch Number	2	2										
										LOD/LOR	Units	Method No.
Date of Receipt					-							
Natural Moisture Content Moisture Content (% Wet Weight)	- 13.2	- 13.9								<0.1 <0.1	%	PM4/PM0 PM4/PM0
worstare content (75 wet weight)	_	_								<b>CO.1</b>	78	1 1014/1 1010
Hexavalent Chromium #	-	-								<0.3	mg/kg	TM38/PM20
Chromium III	-	-								<0.5	mg/kg	NONE/NONE
T. ( . ) O. ( #	-	-								<0.02	9/	TM24/DM24
Total Organic Carbon <sup>#</sup>	-	-								<0.02	%	TM21/PM24
pH#	-	-								<0.01	pH units	TM73/PM11
Mass of raw test portion	-	-									kg	NONE/PM17
Mass of dried test portion	-	-									kg	NONE/PM17

Client Name: Reference: Location: Contact: JE Job No.: Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1176

#### Report : CEN 10:1 1 Batch

JE Job No.:	19/1176												
J E Sample No.	145-147	148-150	151-153	175-177	178-180	181-183	187-189	190-192	208-210	211-213			
Sample ID	WS04	WS04	WS04	WS07	WS07	WS07	WS08	WS08	WS10	WS10			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	2.00-3.00	3.00-4.00	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			Method
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	LOD/LOR	Units	No.
Dissolved Antimony <sup>#</sup>	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	<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	0.04	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic <sup>#</sup>	<0.0025	<0.0025	0.0042	<0.0025	0.0029	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	0.042	<0.025	0.029	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.012	0.033	<0.003	0.004	0.046	0.011	<0.003	0.027	0.041	0.046	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.12	0.33	<0.03	0.04	0.46	0.11	<0.03	0.27	0.41	0.46	<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 <sup>#</sup>	<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 <sup>#</sup>	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.008	0.012	0.002	0.008	0.013	0.011	0.008	0.017	0.013	0.013	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) *	0.08	0.12	<0.02	0.08	0.13	0.11	0.08	0.17	0.13	0.13	<0.02	mg/kg	TM30/PM17
Dissolved Nickel <sup>#</sup>	0.003	<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) #	0.03	<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 <0.03	mg/l	TM30/PM17 TM30/PM17									
Dissolved Selenium (A10) <sup>#</sup> Dissolved Zinc <sup>#</sup>	<0.03	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.03	<0.003	mg/kg mg/l	TM30/PM17 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 <sup>#</sup>	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/l	TM61/PM0
Mercury Dissolved by CVAF <sup>#</sup>	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 <sup>#</sup>	1.3	<0.5	<0.5	1.8	1.0	1.0	<0.5	3.7	7.8	4.1	<0.5	mg/l	TM38/PM0
Sulphate as SO4 <sup>#</sup>	13	<5	<5	18	10	10	<5	37	78	41	<5	mg/kg	TM38/PM0
Chloride <sup>#</sup>	0.8	0.9	0.5	<0.3	2.2	0.8	<0.3	4.6	3.9	2.9	<0.3	mg/l	TM38/PM0
Chloride <sup>#</sup>	8	9	5	<3	22	8	<3	46	39	29	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	2	<2	<2	<2	3	<2	<2	<2	<2	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	20	<20	<20	<20	30	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM0
рН	8.04	8.28	8.32	8.05	8.23	8.23	7.96	8.22	8.24	8.23	<0.01	pH units	TM73/PM0
Total Dissolved Solids <sup>#</sup>	123	221	148	183	155	153	92	106	107	222	<35	mg/l	TM20/PM0
Total Dissolved Solids <sup>#</sup>	1230	2209	1479	1830	1550	1530	920	1060	1070	2221	<350	mg/kg	TM20/PM0

 Client Name:
 Ground Investigations Ireland

 Reference:
 8354-01-19

 Location:
 Cornelscourt

 Contact:
 Barry Sexton

 JE Job No.:
 19/1176

#### Report : EN12457\_2

J E Sample No.	145-147	148-150	151-153	175-177	178-180	181-183	187-189	190-192	208-210	211-213						
Sample ID	WS04	WS04	WS04	WS07	W \$07	W \$07	W \$08	W \$08	WS10	WS10						
Depth	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	2.00-3.00	3.00-4.00				Please se	e attached n	otes for all
COC No / misc															ations and a	
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT						
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019						
-	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Sample Type																<u> </u>
Batch Number	2	2	2	2	2	2	2	2	2	2	Inert	Stable Non- reactive	Hazardous	LOD LOR	Units	Method No.
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019						
Solid Waste Analysis	0.24	0.26	0.14	0.28	0.26	0.10	0.25	0.20	0.24	0.26	3	F	6	-0.02	9/	TM21/PM24
Total Organic Carbon # Sum of BTEX	0.34 <0.025	0.26 <0.025	0.14	0.38	0.26	0.19	0.25 <0.025	0.29	0.34 <0.025	0.26 <0.025	6	- 5	6	<0.02 <0.025	% mg/kg	TM21/PM24 TM31/PM12
Sum of 7 PCBs	<0.025	<0.025	< 0.035	<0.025	< 0.035	< 0.035	<0.025	< 0.035	<0.025	<0.025	1	-	-	<0.025	mg/kg	TM17/PM8
Mineral Oil	673	<30	<30	<30	143	<30	<30	447	<30	100	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 0.12	<0.025	0.042 <0.03	<0.025	0.029	<0.025	<0.025 <0.03	<0.025 0.27	<0.025 0.41	<0.025 0.46	0.5 20	2 100	25 300	<0.025 <0.03	mg/kg	TM30/PM17 TM30/PM17
Barium <sup>#</sup>	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	0.04	100	5	<0.005	mg/kg mg/kg	TM30/PM17 TM30/PM17
Chromium #	<0.015	<0.005	<0.005	<0.005	<0.005	<0.015	<0.015	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper "	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.08	0.12	<0.02	0.08	0.13	0.11	0.08	0.17	0.13	0.13	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel <sup>#</sup>	0.03	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead"	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony <sup>#</sup>	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium "	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc <sup>#</sup>	<0.03 1230	<0.03 2209	<0.03 1479	<0.03 1830	<0.03 1550	<0.03 1530	<0.03 920	<0.03 1060	<0.03 1070	<0.03 2221	4 4000	50 60000	200	<0.03 <350	mg/kg mg/kg	TM30/PM17 TM20/PM0
Total Dissolved Solids # Dissolved Organic Carbon	20	<20	<20	<20	30	<20	<20	<20	<20	<20	500	800	100000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1029	0.1046	0.097	0.1046	0.1027	0.0988	0.1008	0.102	0.1062	0.1024	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	87.2	86.0	92.3	85.9	87.3	90.8	88.9	88.1	84.4	87.9	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.887	0.885	0.892	0.885	0.887	0.891	0.889	0.888	0.883	0.888	-	-	-		I	NONE/PM17
Eluate Volume	0.6	0.63	0.8	0.62	0.61	0.75	0.81	0.65	0.59	0.58	-	-	-		Ι	NONE/PM17
pH <sup>#</sup>	8.57	8.61	9.20	8.69	7.69	8.44	8.66	8.23	8.18	9.40	-	-	-	<0.01	nH unite	TM73/PM11
pH	0.37	0.01	9.20	0.09	1.09	0.44	00.0	0.23	0.18	8.19	-	-	-	<0.01	pH units	1 WI7 3/PWI11
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	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	13	<5	<5	18	10	10	<5	37	78	41	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	8	9	5	<3	22	8	<3	46	39	29	800	15000	25000	<3	mg/kg	TM38/PM0

<b>EPH Interpretation Report</b>
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Client Name:	Ground Investigations Ireland
Reference:	8354-01-19
Location:	Cornelscourt
Contact:	Barry Sexton

Matrix : Solid

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1176	2	WS01	0.00-1.00	115-117	No interpretation possible
19/1176	2	WS01	1.00-2.00	118-120	No interpretation possible
19/1176	2	WS01	2.00-3.00	121-123	No interpretation possible
19/1176	2	WS02	0.00-1.00	124-126	PAH's & Tarmac/Bitumen
19/1176	2	WS02	1.00-2.00	127-129	No interpretation possible
19/1176	2	WS02	2.00-3.00	130-132	No interpretation possible
19/1176	2	WS03	0.00-1.00	133-135	No interpretation possible
19/1176	2	WS03	1.00-2.00	136-138	No interpretation possible
19/1176	2	WS03	2.00-3.00	139-141	No interpretation possible
19/1176	2	WS04	0.00-1.00	142-144	No interpretation possible
19/1176	2	WS04	1.00-2.00	145-147	Degraded diesel
19/1176	2	WS04	2.00-3.00	148-150	No interpretation possible
19/1176	2	WS04	3.00-4.00	151-153	No interpretation possible
19/1176	2	WS05	0.00-1.00	154-156	No interpretation possible
19/1176	2	WS05	1.00-2.00	157-159	No interpretation possible
19/1176	2	WS05	2.00-3.00	160-162	No interpretation possible
19/1176	2	WS06	0.00-1.00	163-165	No interpretation possible
19/1176	2	WS06	1.00-2.00	166-168	No interpretation possible
19/1176	2	WS06	2.00-3.00	169-171	Possible PAH's & Trace lubricating Oil
19/1176	2	WS07	0.00-1.00	172-174	Possible PAH's & lubricating Oil
19/1176	2	WS07	1.00-2.00	175-177	No interpretation possible
19/1176	2	WS07	2.00-3.00	178-180	Possible Degraded diesel
19/1176	2	WS07	3.00-4.00	181-183	No interpretation possible
19/1176	2	WS08	0.00-1.00	184-186	No interpretation possible
19/1176	2	WS08	1.00-2.00	187-189	No interpretation possible
19/1176	2	WS08	2.00-3.00	190-192	Gasoline residues & Degraded diesel
19/1176	2	WS09	0.00-1.00	193-195	No interpretation possible
19/1176	2	WS09	1.00-2.00	196-198	No interpretation possible
19/1176	2	WS09	2.00-3.00	199-201	No interpretation possible
19/1176	2	WS10	0.00-1.00	202-204	No interpretation possible
19/1176	2	WS10	1.00-2.00	205-207	No interpretation possible
19/1176	2	WS10	2.00-3.00	208-210	No interpretation possible

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Client Name:	Ground Investigations Ireland
Reference:	8354-01-19
Location:	Cornelscourt
Contact:	Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1176	2	WS10	3.00-4.00	211-213	Possible Degraded diesel
19/1176	2	WS11	0.00-1.00	214-216	No interpretation possible
19/1176	2	WS11	1.00-2.00	217-219	Gasoline residues, PAH's & Degraded diesel
19/1176	2	WS11	2.00-3.00	220-222	Gasoline residues, Possible PAH's & Degraded diesel
19/1176	2	WS12	0.00-1.00	223-225	No interpretation possible
19/1176	2	WS12	1.00-2.00	226-228	No interpretation possible
19/1176	2	WS12	2.00-3.00	229-231	No interpretation possible
19/1176	2	WS13	0.00-1.00	232-234	No interpretation possible
19/1176	2	WS13	1.00-2.00	235-237	No interpretation possible
19/1176	2	WS13	2.00-3.00	238-240	No interpretation possible

Ground Investigations Ireland 19/01/8354
Cornelscourt
Barry Sexton

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	2	WS04	1.00-2.00	146	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	2	WS04	2.00-3.00	149	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	2	WS04	3.00-4.00	152	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	2	WS07	1.00-2.00	176	04/02/2019	General Description (Bulk Analysis)	soil.stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	2	WS07	2.00-3.00	179	04/02/2019	General Description (Bulk Analysis)	soil.stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	2	WS07	3.00-4.00	182	04/02/2019	General Description (Bulk Analysis)	soil.stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD
					04/02/2019	Asbestos Type	NAD
					04/02/2019	Asbestos Level Screen	NAD
19/1176	2	WS08	1.00-2.00	188	04/02/2019	General Description (Bulk Analysis)	Soil/Stones
					04/02/2019	Asbestos Fibres	NAD
					04/02/2019	Asbestos ACM	NAD

# Jones Environmental Laboratory

Client Name:
Reference:
Location:

Ground Investigations Ireland 19/01/8354 Cornelscourt

Location: Contact:			Cornelscourt Barry Sexton						
J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result		
19/1176	2	WS08	1.00-2.00	188	04/02/2019	Asbestos Type	NAD		
					04/02/2019	Asbestos Level Screen	NAD		
19/1176	2	WS08	2.00-3.00	191	04/02/2019	General Description (Bulk Analysis)	Soil/Stones		
					04/02/2019	Asbestos Fibres	NAD		
					04/02/2019	Asbestos ACM	NAD		
					04/02/2019	Asbestos Type	NAD		
					04/02/2019	Asbestos Level Screen	NAD		
19/1176	2	WS10	2.00-3.00	209	04/02/2019	General Description (Bulk Analysis)	Soil/Stones		
					04/02/2019	Asbestos Fibres	NAD		
					04/02/2019	Asbestos ACM	NAD		
					04/02/2019	Asbestos Type	NAD		
					04/02/2019	Asbestos Level Screen	NAD		
19/1176	2	WS10	3.00-4.00	212		General Description (Bulk Analysis)	Soil/Stones		
					04/02/2019	Asbestos Fibres	NAD		
					04/02/2019	Asbestos ACM	NAD		
					04/02/2019	Asbestos Type	NAD		
					04/02/2019	Asbestos Level Screen	NAD		

Client Name:Ground Investigations IrelandReference:8354-01-19Location:CornelscourtContact:Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason					
	No deviating sample report results for job 19/1176										
					ad in this report. If no complex are listed it is because none were deviating						

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.

### NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 19/1176

#### SOILS

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.

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. 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.

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.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (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.

#### **DEVIATING SAMPLES**

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

#### 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 UKAS requirement 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.

#### **REPORTS FROM THE SOUTH AFRICA LABORATORY**

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

### 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.	
B         Indicates analyte found in associated method blank.           DR         Dilution required.	
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 approp	riate, see 'Note' on previous page.
++ Result outside calibration range, results should be considered as indica	ative only and are not accredited.
* Analysis subcontracted to an Exova Jones Environmental approved lab	poratory.
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 MCEF	RTS
ME Matrix Effect	
NFD No Fibres Detected	
BS AQC Sample	
LB Blank Sample	
N Client Sample	
TB Trip Blank Sample	
OC Outside Calibration Range	

### Appendix - Methods used for WAC (2003/33/EC)

#### JE Job No.: 19/1176

Leachate tests	
	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and
10l/kg; 4mm	filtered over 0.45 µm membrane filter.
Eluate analysis	
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ва	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Мо	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 1484
TDS	I.S. EN 15216
Compositional	analysis
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
BTEX	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 ( ICP-OES)
Other	
	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fisch
Dry matter	titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to $550 \pm 25$ °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range

\*If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS \*\*PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

\*\*\*Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

# Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	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 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 8270. 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 160.3 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	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes

### Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	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
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 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
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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

### Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
ТМ73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
ТМ73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. 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 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 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	PM17	Modified method EN12457-2 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.			AR	
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 and BS1377.			AR	



Ground Investigations Ireland Catherinestown House

Hazelhatch Road

Newcastle Co. Dublin Ireland

## Exova Jones Environmental

Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

Unit 3 Deeside Point Zone 3 Deeside Industrial Park Deeside CH5 2UA

#### Tel: +44 (0) 1244 833780 Fax: +44 (0) 1244 833781



Attention :	Barry Sexton
Date :	26th March, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/4257 Batch 1
Location :	Cornelscourt
Date samples received :	14th March, 2019
Status :	Final report
Issue :	1

Four samples were received for analysis on 14th March, 2019 of which four 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.

#### **Compiled By:**

illaumed.

Lucas Halliwell Project Co-ordinator

Exova Jones Enviro													
Client Name:		vestigatior	ns Ireland				Report :	Liquid					
Reference: Location:	8354-01-1 Cornelsco												
Contact:	Barry Sex						Liquids/pr	oducts: V=	40ml vial G	i=alass bottl	le, P=plastic	bottle	
JE Job No.:	-							Z=ZnAc, N=		•	o, r –plaotio	bottio	
J E Sample No.	1-7	8-14	15-21	22-28									
Sample ID	BH03	BH07	BH08	BH11									
Depth COC No / misc	7.94	2.28	4.13	5.49								e attached nations and ac	
	V H HN HCL P G	V H HN HCL P G	V H HN HCL P G	V H HN HCL P G									
Sample Date													
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1								Units	Metho
Date of Receipt	14/03/2019	14/03/2019	14/03/2019	14/03/2019							LOD/LOR	Units	No.
Dissolved Arsenic <sup>#</sup>	4.9	2.9	4.0	23.5							<2.5	ug/l	TM30/P
Dissolved Boron	32	38	49	38							<12	ug/l	TM30/P
Dissolved Cadmium <sup>#</sup>	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/P
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PI
Dissolved Copper <sup>#</sup>	<7	13	<7	<7							<7	ug/l	TM30/P
Dissolved Lead <sup>#</sup>	<5	<5	<5	<5							<5	ug/l	TM30/P
Dissolved Manganese #	571	480	194	599							<2	ug/l	TM30/P
Dissolved Mercury#	<1	<1	<1	<1							<1	ug/l	TM30/P
Dissolved Nickel <sup>#</sup>	3	59	16	8							<2	ug/l	TM30/P
Dissolved Phosphorus #	11	<5	<5	<5							<5	ug/l	TM30/P
Dissolved Potassium <sup>#</sup>	5.6	7.5	11.6	8.8							<0.1	mg/l	TM30/P
Dissolved Selenium #	<3	<3	<3	<3							<3	ug/l	TM30/P
Dissolved Zinc <sup>#</sup>	<3	3	<3	<3							<3	ug/l	TM30/PI
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM4/PM
Acenaphthylene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PI
Acenaphthene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM
Fluorene <sup>#</sup>	<0.014	<0.014	<0.014	<0.014							<0.014	ug/l	TM4/PI
Phenanthrene #	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PI
Anthracene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PI
Fluoranthene#	<0.012	<0.012	<0.012	<0.012							<0.012	ug/l	TM4/PI
Pyrene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PI
Benzo(a)anthracene #	<0.015	<0.015	<0.015	<0.015							<0.015	ug/l	TM4/PM
Chrysene <sup>#</sup>	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM
Benzo(bk)fluoranthene#	<0.018	<0.018	<0.018	<0.018							<0.018	ug/l	TM4/PM
Benzo(a)pyrene #	<0.016	<0.016	<0.016	<0.016							<0.016	ug/l	TM4/PI
ndeno(123cd)pyrene <sup>#</sup>	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PI
Dibenzo(ah)anthracene #	< 0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PI
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PI
PAH 16 Total <sup>#</sup> Benzo(b)fluoranthene	<0.195 <0.01	<0.195 <0.01	<0.195 <0.01	<0.195 <0.01							<0.195 <0.01	ug/l	TM4/P
( )				<0.01								ug/l	TM4/PI
Benzo(k)fluoranthene PAH Surrogate % Recovery	<0.01 79	<0.01 73	<0.01 78	<0.01 71							<0.01 <0	ug/l %	TM4/PI
An Sunogale % Recovery	79	73	70	71							<0	70	11014/171
													-
													<u> </u>
													<u> </u>

Riter consistent     Sinter series	Exova Jones Envire						_						
Lacano         Display         Subsection         ubsection <th>Client Name:</th> <th></th> <th>0</th> <th>ns Ireland</th> <th></th> <th></th> <th>Report :</th> <th>Liquid</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Client Name:		0	ns Ireland			Report :	Liquid					
Control         Description         Second S													
J E Sample No.         17         0-14         15.21         2.22         No.							Liquids/pr	oducts: V=	40ml vial, G	=glass bott	le, P=plastic	bottle	
Sample D	JE Job No.:	19/4257					H=H <sub>2</sub> SO <sub>4</sub> , 2	Z=ZnAc, N=	NaOH, HN=	HN0 <sub>3</sub>			
Image: state	J E Sample No.	1-7	8-14	15-21	22-28						l		
Image: state													
COC No / size         Number of the set of th	Sample ID	BH03	BH07	BH08	BH11								
COC No / size         Number of the set of th	Durit	7.04	0.00	4.40	5.40								
Columbia     Colu	· · · ·		2.28	4.13	5.49								
Sample M													
Same 17         Band Wall	Containers	V H HN HCL P G											
Bath Name     1   <													
Deed Preceq         MADDEN         M	Sample Type	Ground Water	Ground Water	Ground Water	Ground Water								1
Date of lense     Hondbard     Hondbard <th< th=""><th>Batch Number</th><th>1</th><th>1</th><th>1</th><th>1</th><th></th><th></th><th></th><th></th><th></th><th>LOD/LOR</th><th>Units</th><th></th></th<>	Batch Number	1	1	1	1						LOD/LOR	Units	
AuplaideIve	Date of Receipt	14/03/2019	14/03/2019	14/03/2019	14/03/2019								No.
CGC CG*     4:0     4:													
CGC 63 <sup>4</sup> 100     100													
Scholin     100     10													
Schools													
bc12c16*     c10     c													TM5/PM16/PM30
SC21-C35*       I-00													TM5/PM16/PM30
Total algebration SCS-35*         4-10         4-10         1-10 <th1< th=""><th>&gt;C16-C21 #</th><th>&lt;10</th><th>&lt;10</th><th>&lt;10</th><th>&lt;10</th><th></th><th></th><th></th><th></th><th></th><th>&lt;10</th><th>ug/l</th><th>TM5/PM16/PM30</th></th1<>	>C16-C21 #	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Aromaics     Image: Sected of the sected of th	>C21-C35 #	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
ScScZ?*       c10       <	Total aliphatics C5-35 #	<10	<10	<10	114						<10	ug/l	TM5/TM36/PM12/PM16/PM3
FEC7-ECS*       <10		-10	-10	-10	-10						-10		TM26/DM42
SEGEC10*       <10													
SEC12-EC16*													TM36/PM12
SEC16-EC21*	>EC10-EC12#	<5	<5	<5	<5						<5	ug/l	TM5/PM16/PM30
SEC21-EC35*<10	>EC12-EC16#	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35*       <10	>EC16-EC21 #		<10									ug/l	TM5/PM16/PM30
Total aliphatics and aromatics (CS-39)       <100													TM5/PM16/PM30
MTBE*         45         45         45         25         66													TM5/TM36/PM12/PM16/PM3
Benzene <sup>4</sup>		110	110	110							110	ag,	
Toluene*                   MD       MD <th< th=""><th>MTBE #</th><th>&lt;5</th><th>&lt;5</th><th>&lt;5</th><th>25</th><th></th><th></th><th></th><th></th><th></th><th>&lt;5</th><th>ug/l</th><th>TM31/PM12</th></th<>	MTBE #	<5	<5	<5	25						<5	ug/l	TM31/PM12
Ethylbenzene*	Benzene <sup>#</sup>	<5	<5	<5							<5	ug/l	TM31/PM12
mp-xylene*        <th></th> <th></th> <th>TM31/PM12</th>													TM31/PM12
o-Xylene*       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5       <5													
Phenol <sup>*</sup> Supplies SQ <sup>#</sup> Supplies SQ <sup></sup>													
Automatical Nitrogen as NH3*CalculationInternation </th <th>e Aylone</th> <th></th> <th>-9.</th> <th></th>	e Aylone											-9.	
Cholode <sup>4</sup> 20.0       37.2       23.7       17.9       Image: Cholode of the context of t	Phenol <sup>#</sup>	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Choirde <sup>4</sup> 20.0       37.2       23.7       17.9       Image: Choirde and													
Nitrate as NO3*       <0.2	Sulphate as SO4 #												TM38/PM0
Nitrite as NO2*       0.15       1.03       <0.02													
Total Cyanide *       <0.01													
Ammoniacal Nitrogen as NH3*       0.37       0.42       0.06       0.11       Image: Construction of the constructing and the construction of the construction of the cons		0.10		40.02	0.00						10.02		
Hexavalent Chromium         <0.006	Total Cyanide #	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM89/PM0
Hexavalent Chromium         <0.006													
Electrical Conductivity @25C* 292 694 641 399 C 2 uS/cm TM76/PMC	Ammoniacal Nitrogen as NH3 <sup>#</sup>												TM38/PM0
	Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006						<0.006	mg/l	TM38/PM0
	Electrical Conductivity @250 #	292	694	641	399						<2	uS/cm	TM76/PM0
	pH <sup>#</sup>												TM73/PM0

Client Name:Ground Investigations IrelandReference:8354-01-19Location:CornelscourtContact:Barry Sexton

Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
				No deviating sample report results for job 19/4257	
	Batch	Batch       Sample ID         Image: Sampl	BatchSample IDDepthImage: Sample IDImage: Sample IDIma	BatchSample IDDepthJ E Sample No.Image: Sample IDDepthJ E Sample No.Image: Sample IDImage: Sample ID	

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.

#### NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 19/4257

#### SOILS

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.

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. 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.

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.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (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.

#### **DEVIATING SAMPLES**

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

#### 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 UKAS requirement 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.

#### **REPORTS FROM THE SOUTH AFRICA LABORATORY**

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

#### ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	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.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	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
ТВ	Trip Blank Sample
OC	Outside Calibration Range

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				

### Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			



Ground Investigations Ireland Catherinestown House

Hazelhatch Road

Newcastle Co. Dublin Ireland

## Exova Jones Environmental

Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

Unit 3 Deeside Point Zone 3 Deeside Industrial Park Deeside CH5 2UA

#### Tel: +44 (0) 1244 833780 Fax: +44 (0) 1244 833781



Attention :	Barry Sexton
Date :	15th February, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/1246 Batch 1
Location :	Cornelscourt
Date samples received :	25th January, 2019
Status :	Final report
Issue :	1

Eighteen samples were received for analysis on 25th January, 2019 of which eighteen 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.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

#### **Compiled By:**

illaumed.

Lucas Halliwell Project Co-ordinator

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : Solid

JE Job No.:	19/1246												
J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50		e attached n	
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	VJT											
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil	Soil											
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	25/01/2019	25/01/2019			25/01/2019	25/01/2019		25/01/2019	25/01/2019	25/01/2019	LOD/LOR	Units	Method No.
Antimony	<1	2	1	2	2	2	2	3	2	1	<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	8.0	9.8	8.8	13.2	10.1	10.8	8.6	20.8	10.7	7.3	<0.5	mg/kg	TM30/PM15
Barium <sup>#</sup>	52	73	60	91	69	61	154	63	92	132	<1	mg/kg	TM30/PM15
Cadmium #	2.1	2.0	1.6	2.2	1.8	1.2	2.1	3.0	2.3	1.1	<0.1	mg/kg	TM30/PM15
Chromium <sup>#</sup>	40.4	37.1	47.8	69.0	41.8	65.3	66.2	45.3	46.8	88.6	<0.5	mg/kg	TM30/PM15
Copper <sup>#</sup>	18	33	28	34	28	14	40	38	33	31	<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	12	16	15	31	16	15	28	20	21	18	<5	mg/kg	TM30/PM15
Mercury <sup>#</sup>	<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 #	3.6	3.9	4.1	5.4	3.8	3.7	3.2	4.3	4.5	2.3	<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	25.0	40.5	34.4	45.0	33.8	46.8	49.6	50.4	41.9	25.6	<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	1	1	1	1	1	2	2	<1	<1	mg/kg	TM30/PM15
Zinc <sup>#</sup>	77	92	76	110	83	75	107	190	100	67	<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 <sup>#</sup>	<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 <0.03	<0.04	<0.04 <0.03	mg/kg	TM4/PM8 TM4/PM8								
Fluoranthene <sup>#</sup>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.06	<0.05	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	<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 <sup>#</sup>	<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 <sup>#</sup>	<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 PAH Surrogate % Recovery	<1 99	<1 83	<1 90	<1 95	<1 85	<1 89	<1 107	<1 90	<1 95	<1 101	<1 <0	mg/kg %	TM4/PM8 TM4/PM8
PAH Surrogale % Recovery	99	83	90	95	85	89	107	90	95	101	<0	%	11014/121018
Mineral Oil (C10-C40)	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	mg/kg	TM5/PM8/PM16
		1			1		1	1	1	1			1

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : Solid

JE Job No.:	19/1246												
J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	VJT												
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1			
						-					LOD/LOR	Units	Method No.
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019			
Aliphatics													
>C5-C6 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 <sup>#</sup>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 <sup>#</sup>	<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
>C12-C16 <sup>#</sup>	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40 Total aliphatics C5-40	<7 <26   mg/kg	TM5/PM8/PM16											
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<20	<0.1	mg/kg mg/kg	TM36/PM12
>C10-C25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12#	<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 <sup>#</sup>	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16 TM5/PM8/PM16
>EC16-EC21 # >EC21-EC35 #	<7 <7    mg/kg mg/kg	TM5/PM8/PM16											
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM38/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	mg/kg	TM5/TM38/PM8/PM12/PM16
>EC6-EC10#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene <sup>#</sup>	<5 <5	<5	<5 <5	<5 <5	<5	<5 <5	<5 <5	<5	<5 <5	<5 <5	<5	ug/kg	TM31/PM12 TM31/PM12
Toluene <sup>#</sup> Ethylbenzene <sup>#</sup>	<5	<5 <5	<5	<5 <5	<5 <5	<5	<5	<5 <5	<5	<5	<5 <5	ug/kg ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 <sup>#</sup>	<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 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 <sup>#</sup> Total 7 PCBs <sup>#</sup>	<5 <35   ug/kg	TM17/PM8 TM17/PM8											
TUIAL / PUBS	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	ug/kg	11111/1910

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : Solid

JE Job No.:	19/1246												
J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50	Ploaso co	e attached n	otos for all
COC No / misc												cronyms	
Containers	VJT												
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1		11.56	Method
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	LOD/LOR	Units	No.
Natural Moisture Content	15.5	10.7	13.4	23.0	13.6	12.1	24.9	15.1	14.0	22.3	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	13.4	9.7	11.8	18.7	12.0	10.8	20.0	13.1	12.3	18.2	<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
Sulphate as SO4 (2:1 Ext) #	-	-	-	-	0.0075	-	-	-	0.0099	-	<0.0015	g/l	TM38/PM20
Chromium III	40.4	37.1	47.8	69.0	41.8	65.3	66.2	45.3	46.8	88.6	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.22	0.35	0.27	1.01	0.29	0.15	1.18	0.34	0.49	0.95	<0.02	%	TM21/PM24
рН#	8.64	8.57	8.71	8.35	8.73	8.69	8.24	8.53	8.61	8.22	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1027	0.1047	0.1033	0.1094	0.1042	0.1026	0.1135	0.1036	0.1005	0.1098		kg	NONE/PM17
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

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : Solid

	19/1246								 	-		
J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54				
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21				
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50		Please se	e attached n	otes for all
COC No / misc											ations and a	
Containers	VJT											
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019				
Sample Type	Soil											
Batch Number	1	1	1	1	1	1	1	1				
Date of Receipt					25/01/2019			25/01/2019		LOD/LOR	Units	Method No.
Antimony	23/01/2019	23/01/2019	3	23/01/2019	<1	23/01/2019	23/01/2019	23/01/2019		<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	9.7	10.0	16.2	12.1	5.6	8.5	10.7	11.4		<0.5	mg/kg	TM30/PM15
Barium <sup>#</sup>	70	72	96	70	65	129	86	92		<1	mg/kg	TM30/PM15
Cadmium <sup>#</sup>	1.9	2.3	3.1	2.1	1.1	1.3	2.0	2.3		<0.1	mg/kg	TM30/PM15
Chromium <sup>#</sup>	55.1	56.2	68.0	44.3	43.8	104.6	55.3	53.7		<0.5	mg/kg	TM30/PM15
Copper <sup>#</sup>	31	29	44	32	26	41	34	34		<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	16	17	36	19	17	22	18	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	mg/kg	TM30/PM15
Molybdenum #	3.5	3.8	6.7	4.9	2.5	2.9	4.4	4.5		<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	35.5	36.8	65.3	44.7	38.8	29.6	44.0	42.8		<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>	1	1	2	1	<1	<1	1	2		<1	mg/kg	TM30/PM15
Zinc <sup>#</sup>	88	85	136	106	82	77	95	103		<5	mg/kg	TM30/PM15
PAH MS												
Naphthalene <sup>#</sup>	<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	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM4/PM8
Fluorene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04 <0.03	<0.04	<0.04	<0.04 <0.03	<0.04		<0.04	mg/kg	TM4/PM8 TM4/PM8
Phenanthrene <sup>#</sup>	<0.03 <0.04	<0.03 <0.04	<0.03 <0.04	<0.03	<0.03 <0.04	<0.03 <0.04	<0.03	<0.03 <0.04		<0.03 <0.04	mg/kg mg/kg	TM4/PM8
Fluoranthene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Pyrene <sup>#</sup>	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene <sup>#</sup>	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06		<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<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	mg/kg	TM4/PM8
Benzo(a)pyrene <sup>#</sup>	<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 <sup>#</sup>	<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	mg/kg	TM4/PM8
Benzo(ghi)perylene <sup>#</sup>	<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	mg/kg	TM4/PM8
PAH 6 Total <sup>#</sup>	<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	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	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	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1		<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	97	85	98	103	101	99	95	98		<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	<30	<30	<30	<30	<30	<30	<30		<30	mg/kg	TM5/PM8/PM16
	~00		~00	~00				~~~				

Client Name:
Reference:
Location:
Contact:
JE Job No.:

Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : Solid

JE JOD NO.:	19/1246								 	-		
J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54		]		
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21				
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50		Discourse		
COC No / misc											e attached r ations and a	
Containers	VJT											
Sample Date	23/01/2019	23/01/2019	23/01/2019		23/01/2019	23/01/2019	23/01/2019	23/01/2019				
Sample Type	Soil											
Batch Number	1	1	1	1	1	1	1	1		LOD/LOR	Units	Method
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019				No.
TPH CWG												
Aliphatics												
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>C8-C10 >C10-C12 <sup>#</sup>	<0.1 <0.2		<0.1 <0.2	mg/kg	TM36/PM12 TM5/PM8/PM16							
>C10-C12 >C12-C16 <sup>#</sup>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg mg/kg	TM5/PM8/PM16
>C12-C18	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>C21-C35#	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26		<26	mg/kg	TM5/TM38/PM8/PM12/PM16
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	TM5/PM8/PM16
Aromatics												
>C5-EC7#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>EC7-EC8#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>EC8-EC10 <sup>#</sup> >EC10-EC12 <sup>#</sup>	<0.1 <0.2	<0.1	<0.1	<0.1 <0.2	<0.1	<0.1 <0.2	<0.1 <0.2	<0.1		<0.1	mg/kg	TM36/PM12 TM5/PM8/PM16
>EC10-EC12 >EC12-EC16 <sup>#</sup>	<0.2	<0.2 <4	<0.2 <4	<0.2	<0.2 <4	<0.2	<0.2	<0.2 <4		<0.2 <4	mg/kg mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>EC21-EC35#	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26		<26	mg/kg	TM5/TM38/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52		<52	mg/kg	TM5/TM38/PM8/PM12/PM16
>EC6-EC10#	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	TM5/PM8/PM16
	_		_				-	-				THOME
MTBE <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
Benzene <sup>#</sup> Toluene <sup>#</sup>	<5 <5		<5 <5	ug/kg ug/kg	TM31/PM12 TM31/PM12							
Ethylbenzene <sup>#</sup>	<5	<5	<5	<5 <5	<0 <5	<5 <5	<5 <5	<5		<5	ug/kg ug/kg	TM31/PM12 TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
PCB 28 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 52#	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 118 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 138 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 153 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 180 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
Total 7 PCBs <sup>#</sup>	<35	<35	<35	<35	<35	<35	<35	<35		<35	ug/kg	TM17/PM8

Client Name:
Reference:
Location:
Contact:
JE Job No.:

#### Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : Solid

JE Job No.:	19/1246												
J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54					
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21					
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50			Disease		
COC No / misc												e attached n ations and a	
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT					
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number		1	1	1	1	1	1	1					Marthaut
Date of Receipt											LOD/LOR	Units	Method No.
Natural Moisture Content	14.9	14.2	24.6	12.2	12.8	23.1	12.8	14.9			<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)		12.4	19.8	10.9	11.4	18.8	11.4	13.0			<0.1	%	PM4/PM0
Hexavalent Chromium <sup>#</sup>	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) <sup>#</sup> Chromium III	- 55.1	0.0131 56.2	- 68.0	- 44.3	0.0071 43.8	- 104.6	- 55.3	- 53.7			<0.0015 <0.5	g/l mg/kg	TM38/PM20 NONE/NONE
							23.0						
Total Organic Carbon #	0.29	0.28	1.00	0.30	0.33	1.40	0.36	0.36			<0.02	%	TM21/PM24
рН <sup>#</sup>	8.58	8.63	8.26	8.62	8.76	8.21	8.57	8.67			<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1007	0.1066	0.1115	0.1029	0.1008	0.1115	0.1049	0.1036				kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09				kg	NONE/PM17
													-
													<u> </u>
	1		1	1	1	1	1	1	i	1			4

Client Name: Reference: Location: Contact: JE Job No.: Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : CEN 10:1 1 Batch

JE Job No.:	19/1246												
J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
											LOD/LOR	Units	Method No.
Date of Receipt			25/01/2019		25/01/2019				25/01/2019	25/01/2019			TH00/D1/17
Dissolved Antimony <sup>#</sup>	< 0.002	<0.002 <0.02	< 0.002	< 0.002	<0.002 <0.02	<0.002 <0.02	<0.002	<0.002 <0.02	<0.002 <0.02	<0.002	<0.002	mg/l	TM30/PM17 TM30/PM17
Dissolved Antimony (A10) * Dissolved Arsenic *	<0.02 <0.0025	<0.02	<0.02 <0.0025	<0.02 <0.0025	<0.02	<0.02	<0.02 <0.0025	<0.02	<0.02	<0.02 <0.0025	<0.02 <0.0025	mg/kg 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 <sup>#</sup>	<0.003	0.005	<0.003	<0.003	0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	0.05	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium <sup>#</sup>	< 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 <sup>#</sup>	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	mg/l	TM30/PM17 TM30/PM17
Dissolved Lead (A10) #	<0.05 0.007	<0.05 0.017	<0.05 0.005	<0.05 0.004	<0.05 0.007	<0.05 0.007	<0.05 0.003	<0.05 0.004	<0.05 0.007	<0.05 <0.002	<0.05 <0.002	mg/kg	TM30/PM17 TM30/PM17
Dissolved Molybdenum <sup>#</sup> Dissolved Molybdenum (A10) <sup>#</sup>	0.007	0.017	0.005	0.004	0.007	0.007	0.003	0.004	0.007	<0.02	<0.02	mg/l 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) <sup>#</sup>	<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 <sup>#</sup>	<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 Selenium (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
Dissolved Zinc <sup>#</sup>	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 <sup>#</sup>	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	mg/l	TM38/PM0
Sulphate as SO4 <sup>#</sup>	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	mg/kg	TM38/PM0
Chloride <sup>#</sup>	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	<0.3	0.3	<0.3	mg/l	TM38/PM0
Chloride <sup>#</sup>	4	<3	<3	<3	<3	<3	<3	<3	<3	3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	mg/kg	TM60/PM0
pН	8.07	8.30	8.02	8.14	8.14	8.01	8.10	8.20	8.14	7.96	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	165	189	130	283	115	102	184	160	94	78	<35	mg/l	TM20/PM0
Total Dissolved Solids <sup>#</sup>	1649	1889	1300	2829	1150	1020	1840	1599	940	780	<350	mg/kg	TM20/PM0

Client Name: Reference: Location: Contact: JE Job No.: Ground Investigations Ireland 8354-01-19 Cornelscourt Barry Sexton 19/1246

#### Report : CEN 10:1 1 Batch

JE Job No.:	19/1246											
J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54				
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21				
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50		Disease		
COC No / misc											e attached n ations and a	
Containers	VJT											
Sample Date				23/01/2019						-		
Sample Type	Soil											
Batch Number	1	1	1	1	1	1	1	1		LOD/LOR	Units	Method
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019				No.
Dissolved Antimony#	<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	mg/kg	TM30/PM17
Dissolved Arsenic <sup>#</sup>	<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	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	<0.003		<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	<0.03	< 0.03	< 0.03	<0.03	<0.03	0.04	<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	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	mg/kg	TM30/PM17
Dissolved Chromium <sup>#</sup>	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015		<0.0015	mg/l	TM30/PM17 TM30/PM17
Dissolved Chromium (A10) * Dissolved Copper *	<0.015 <0.007		<0.015 <0.007	mg/kg mg/l	TM30/PM17 TM30/PM17							
Dissolved Copper	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.005	0.007	0.002	0.008	0.014	<0.002	0.006	0.007		<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.05	0.07	0.02	0.08	0.14	<0.02	0.06	0.07		<0.02	mg/kg	TM30/PM17
Dissolved Nickel <sup>#</sup>	<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	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<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	<0.03		<0.03	mg/kg	TM30/PM17
Dissolved Zinc <sup>#</sup>	<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	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	mg/kg	TM61/PM0
Phenol	<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	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3		<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<0.5	0.6	1.3	1.3	1.3	1.3	1.4	2.1		<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	<5	6	13	13	13	13	14	21		<5	mg/kg	TM38/PM0
Chloride #	0.4	0.7	0.9	0.8	6.9	0.9	0.9	0.8		<0.3	mg/l	TM38/PM0
Chloride <sup>#</sup>	4	7	9	8	69	9	9	8		<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	<2	<2	2	<2	<2		<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	20	<20	<20		<20	mg/kg	TM60/PM0
рН	7.67	7.01	7.68	8.28	8.46	8.13	8.28	8.47		<0.01	pH units	TM73/PM0
Total Dissolved Solids <sup>#</sup>	168	<35	<35	<35	77	174	65	35		<35	mg/l	TM20/PM0
Total Dissolved Solids *	1680	<350	<350	<350	770	1740	650	<350		<350	mg/kg	TM20/PM0

 Client Name:
 Ground Investigations Ireland

 Reference:
 8354-01-19

 Location:
 Cornelscourt

 Contact:
 Barry Sexton

 JE Job No.:
 19/1246

#### Report : EN12457\_2

JE Job No.:	19/1246															
J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30						
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16						
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50				Ploaso so	e attached n	otos for all
COC No / misc															ations and a	
Containers	VJT															
Sample Date			23/01/2019					23/01/2019		23/01/2019						
-																
Sample Type	Soil				-		-									
Batch Number	1	1	1	1	1	1	1	1	1	1	Inert	Stable Non- reactive	Hazardous	LOD LOR	Units	Method No.
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019		TEACTIVE				NO.
Solid Waste Analysis																
Total Organic Carbon	0.22	0.35	0.27	1.01	0.29	0.15	1.18	0.34	0.49	0.95	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025 <0.035	<0.025	<0.025	<0.025	<0.025 <0.035	<0.025	<0.025 <0.035	6	-	-	<0.025 <0.035	mg/kg mg/kg	TM31/PM12 TM17/PM8
Sum of 7 PCBs <sup>#</sup> Mineral Oil	<30	<0.035	<30	<30	<0.035	<30	<30	<0.035	<0.035	<30	500	-	-	<0.035	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	0.05	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<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 2	10	70	<0.015	mg/kg	TM30/PM17
Copper"	<0.07 <0.0001	2	50 0.2	100 2	<0.07 <0.0001	mg/kg mg/kg	TM30/PM17 TM61/PM0									
Mercury " Molybdenum "	0.07	0.17	0.05	0.04	0.07	0.07	0.03	0.04	0.07	<0.02	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead"	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium "	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<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	1649	1889	1300	2829	1150	1020	1840	1599	940	780	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1027	0.1047	0.1033	0.1094	0.1042	0.1026	0.1135	0.1036	0.1005	0.1098	-	-	-		ka	NONE/PM17
Dry Matter Content Ratio	87.8	85.9	87.5	82.0	86.6	87.6	79.0	86.8	89.4	81.6	-	-	-	<0.1	kg %	NONE/PM17
Leachant Volume	0.887	0.885	0.887	0.88	0.886	0.887	0.876	0.886	0.889	0.88	-	-	_	-0.1	1	NONE/PM17
Eluate Volume	0.82	0.65	0.7	0.75	0.7	0.85	0.71	0.61	0.68	0.7	-	-	-		1	NONE/PM17
pH <sup>#</sup>	8.64	8.57	8.71	8.35	8.73	8.69	8.24	8.53	8.61	8.22	-	-	-	<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	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	4	<3	<3	<3	<3	<3	<3	<3	<3	3	800	15000	25000	<3	mg/kg	TM38/PM0
	L	I	I	L	1	L			1	1		I		l		1

 Client Name:
 Ground Investigations Ireland

 Reference:
 8354-01-19

 Location:
 Cornelscourt

 Contact:
 Barry Sexton

 JE Job No.:
 19/1246

#### Report : EN12457\_2

JE Job No.:	19/1246									_					
J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54							
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21							
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50							
COC No / misc														e attached i iations and a	
	VIT	VIT	V 1 T	V 1 T	VIT	)/ IT	VIT	V IT							
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT							
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019		ļ					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						-	
Batch Number	1	1	1	1	1	1	1	1		Inert	Stable Non-	Hazardous	LOD LOR	Units	Method
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019		ment	reactive	Tiazardous	LOD LOIN	OTILS	No.
Solid Waste Analysis															
Total Organic Carbon #	0.29	0.28	1.00	0.30	0.33	1.40	0.36	0.36		3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025		6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs"	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035		1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	<30	<30		500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 <sup>#</sup> PAH Sum of 17	<0.22 <0.64	<0.22 <0.64	<0.22 <0.64	<0.22 <0.64	<0.22 <0.64	<0.22	<0.22	<0.22 <0.64		- 100	-	-	<0.22 <0.64	mg/kg mg/kg	TM4/PM8 TM4/PM8
	<b>NU.04</b>	<b>NU.04</b>	<b>NU.04</b>	<b>NU.04</b>	<b>NU.04</b>	<b>NU.04</b>	<b>NU.04</b>	<b>NU.04</b>		100	-	-	×0.04	mg/kg	TIVIH/FIVIO
CEN 10:1 Leachate															
Arsenic <sup>#</sup>	<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	<0.03	<0.03	<0.03	<0.03	0.04	<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		0.04	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		0.5	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		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		0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.05	0.07	0.02	0.08	0.14	<0.02	0.06	0.07		0.5	10	30	<0.02	mg/kg	TM30/PM17 TM30/PM17
Nickel <sup>#</sup> Lead <sup>#</sup>	<0.02 <0.05	<0.02 <0.05	<0.02 <0.05	<0.02 <0.05	<0.02 <0.05	<0.02 <0.05	<0.02	<0.02 <0.05		0.4	10 10	40 50	<0.02 <0.05	mg/kg mg/kg	TM30/PM17 TM30/PM17
Antimony#	<0.02	<0.03	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03		0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	<0.03		0.1	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		4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1680	<350	<350	<350	770	1740	650	<350		4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	20	<20	<20		500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1007	0.1066	0.1115	0.1029	0.1008	0.1115	0.1049	0.1036		-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	88.9	84.4	80.8	87.0	89.0	81.0	85.8	86.6		-	-	-	<0.1	%	NONE/PM4
Leachant Volume Eluate Volume	0.889	0.883	0.879	0.887	0.889	0.879	0.885	0.886		-	-	-		1	NONE/PM17 NONE/PM17
			2.00			2.0									
рН "	8.58	8.63	8.26	8.62	8.76	8.21	8.57	8.67		-	-	-	<0.01	pH units	TM73/PM11
Phenol	<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	mg/kg	TM173/PM0
Sulphate as SO4 #	<5	6	13	13	13	13	14	21		1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	4	7	9	8	69	9	9	8		800	15000	25000	<3	mg/kg	TM38/PM0
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Matrix	<b>•</b> •• •
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Client Name:	Ground Investigations Ireland
Reference:	8354-01-19
Location:	Cornelscourt
Contact:	Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1246	1	TP - 11	1.00	1-3	No interpretation possible
19/1246	1	TP - 11	2.00	4-6	No interpretation possible
19/1246	1	TP - 11	3.00	7-9	No interpretation possible
19/1246	1	TP - 12	0.50	10-12	No interpretation possible
19/1246	1	TP - 12	1.50	13-15	No interpretation possible
19/1246	1	TP - 12	2.50	16-18	No interpretation possible
19/1246	1	TP - 13	0.50	19-21	No interpretation possible
19/1246	1	TP - 13	1.50	22-24	No interpretation possible
19/1246	1	TP - 13	2.50	25-27	No interpretation possible
19/1246	1	TP - 16	0.50	28-30	No interpretation possible
19/1246	1	TP - 16	1.50	31-33	No interpretation possible
19/1246	1	TP - 16	2.50	34-36	No interpretation possible
19/1246	1	TP - 17	0.50	37-39	No interpretation possible
19/1246	1	TP - 17	1.50	40-42	No interpretation possible
19/1246	1	TP - 17	2.50	43-45	No interpretation possible
19/1246	1	TP - 21	0.50	46-48	No interpretation possible
19/1246	1	TP - 21	1.50	49-51	No interpretation possible
19/1246	1	TP - 21	2.50	52-54	No interpretation possible

#### Asbestos Analysis

#### Exova Jones Environmental

Client Name: Reference:	Ground Investigations Ireland 19/01/8354
Location:	Cornelscourt
Contact:	Barry Sexton

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1246	1	TP - 11	1.00	2	01/02/2019	General Description (Bulk Analysis)	Soil/Stone
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 11	2.00	5	01/02/2019	General Description (Bulk Analysis)	Soil/Stone
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 11	3.00	8	01/02/2019	General Description (Bulk Analysis)	Soil/Stone
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 12	0.50	11	01/02/2019	General Description (Bulk Analysis)	Soil/Stone
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 12	1.50	14	01/02/2019	General Description (Bulk Analysis)	Soil/Stone
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 12	2.50	17	01/02/2019	General Description (Bulk Analysis)	Soil/Stone
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 13	0.50	20	01/02/2019	General Description (Bulk Analysis)	soil-stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD

### Jones Environmental Laboratory

Client Name:
Reference:
Location:
Contact:

Ground Investigations Ireland 19/01/8354 Cornelscourt

Locatio Contact			Cornelso Barry Se				
J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1246	1	TP - 13	0.50	20	01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 13	1.50	23	01/02/2019	General Description (Bulk Analysis)	soil-stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 13	2.50	26	01/02/2019	General Description (Bulk Analysis)	soil-stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 16	0.50	29	01/02/2019	General Description (Bulk Analysis)	Soil/Stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 16	1.50	32	01/02/2019	General Description (Bulk Analysis)	Soil/Stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 16	2.50	25	01/02/2010	Constal Description (Bulk Apolysia)	Soil/Stones
19/1240		11-10	2.50	35	01/02/2019	General Description (Bulk Analysis) Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
					01/02/2010		
19/1246	1	TP - 17	0.50	38	01/02/2019	General Description (Bulk Analysis)	soil-stones
10/12/10			0.00		01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 17	1.50	41	01/02/2019	General Description (Bulk Analysis)	soil-stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 17	2.50	44	01/02/2019	General Description (Bulk Analysis)	Soil/Stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 21	0.50	47	01/02/2019	General Description (Bulk Analysis)	soil.stones
					01/02/2019	Asbestos Fibres	NAD

#### Jones Environmental Laboratory

Client I Referer Locatic Contac	nce: on:		Ground I 19/01/83 Cornelsc Barry Se	54 ourt	ions Ireland		
J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1246	1	TP - 21	0.50	47	01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
		<b>TD</b> 64			/ /		
19/1246	1	TP - 21	1.50	50		General Description (Bulk Analysis)	soil.stones
					01/02/2019 01/02/2019	Asbestos Fibres Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD
19/1246	1	TP - 21	2.50	53	01/02/2019	General Description (Bulk Analysis)	soil.stones
					01/02/2019	Asbestos Fibres	NAD
					01/02/2019	Asbestos ACM	NAD
					01/02/2019	Asbestos Type	NAD
					01/02/2019	Asbestos Level Screen	NAD

Client Name:Ground Investigations IrelandReference:8354-01-19Location:CornelscourtContact:Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason				
	No deviating sample report results for job 19/1246									

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.

#### NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 19/1246

#### SOILS

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.

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. 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.

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.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (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.

#### **DEVIATING SAMPLES**

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

#### 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 UKAS requirement 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.

#### **REPORTS FROM THE SOUTH AFRICA LABORATORY**

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

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

### Appendix - Methods used for WAC (2003/33/EC)

#### JE Job No.:

19/1246

Leachate tests	
10l/kg; 4mm	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and
lowing, initia	filtered over 0.45 µm membrane filter.
Eluate analysi	S
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ва	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Мо	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 1484
TDS	I.S. EN 15216
Compositiona	l analysis
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
BTEX	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 ( ICP-OES)
Other	
	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fisch
Dry matter	titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to $550 \pm 25$ °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range
Notes:	
	due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS
	-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180
***Nonhthalana	Accorately and Accorately and Anthroportal Renze (a) anthroportal Renze (b) fluoranthona Renze (k) fluoranthona

\*\*\*Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

### Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	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 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 8270. 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 160.3 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	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes

### Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	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
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 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
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	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 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. 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 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 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	PM17	Modified method EN12457-2 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.			AR	

### Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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 and BS1377.			AR	

# **APPENDIX 9** – Groundwater Monitoring Records



(V1 August 2018)	(V1	August	2018)
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		(VI August 20	18)				
Project Number	8354-0	)1-2019	Sam	ple Date		13-03	-2019
Client	DBFL Consult	ing Engineers	W	ell I.D.		BH	-03
Site Name	Corne	lscourt	We	eather		D	ry
Sampler I.D.	Р	M	Weather P	revious 2	4hrs	W	et
		Well Da	ta				
Casing Diameter (mm)	100	mm	Total We	ell Depth (	m)	9.	59
Standpipe Diam. (mm)	50	mm	Water Le	vel (mBG	L)	2.	27
Stick Up (mm)	0.42	4mm	VOC Screen	in casing	; (y/n)	۱	١
Standpipe Type pvc, HDPE etc.	P	VC	VOC D	ata (ppm	)	pp	om
		Purge Da	ita				
Time Purging Start	9.5	5am	Sampli	ng Metho	od/Equ	ipment (T	ick)
Timer Purging End	10.2	.7am	Submer	sible Pur	пр		
Purge Volume (litres)	38	itres.	В	ailer		,	/
Colour	Bro	own	Tube wit	h foot va	lve		
Recovery	Go	ood	Low Flo	w Pumpir	ng		
Time	Litres Purged	Ph	EC (mS)	Temp	ORP	DO (mg/l)	Odour
10.27	38 litres						
	1				1		
Additional Comments/C							



		(V1 August 20	10)				
Project Number	8354-0	)1-2019	Samı	ole Date		13-	03-2019
Client	DBFL Consult	ting Engineers	We	ell I.D.		E	3H-07
Site Name	Corne	lscourt	We	eather			Dry
Sampler I.D.	Р	М	Weather P	revious 2	4hrs		Wet
		Well (	Data				
Casing Diameter (mm)	100	)mm	Total We	ll Depth (	m)		11.55
Standpipe Diam. (mm)	50	mm	Water Le	vel (mBG	L)		1.02
Stick Up (mm)	0.42	4mm	VOC Screen	in casing	; (y/n)		N
Standpipe Type pvc, HDPE etc.	P	VC	VOC D	ata (ppm)	)		ppm
		Purge	Data				
Time Purging Start	11.4	l0am	Sam	pling Met	thod/E	quipment	(Tick)
Timer Purging End	12.1	LOam	Submer	sible Pum	пр		
Purge Volume (litres)	55 l	itres	В	ailer			٧
Colour	Bro	own	Tube wit	h foot va	lve		
Recovery	Go	bod	Low Flo	w Pumpir	וg		
-	Litres	DI.	50 ( 6 )	-	0.00	DO	
<b>Time</b> 12.10	Purged 55 litres	Ph	EC (mS)	Temp	ORP	(mg/l)	Odour Hydrocarbor odour noted



(V1 August 2018)	
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		(VI August 20	10]				
Project Number	8354-0	)1-2019	Samj	ole Date		13-03	-2019
Client	DBFL Consult	ting Engineers	We	ell I.D.		BH	-08
Site Name	Corne	lscourt	We	eather		D	ry
Sampler I.D.	Р	М	Weather P	revious 2	4hrs	W	et
		Well Da	ta				
Casing Diameter (mm)	100	)mm	Total We	ll Depth (	m)	7.	95
Standpipe Diam. (mm)	50	mm	Water Le	vel (mBG	L)	0.	96
Stick Up (mm)	0.42	4mm	VOC Screen	in casing	(y/n)	٦	١
Standpipe Type pvc, HDPE etc.	P	VC	VOC D	ata (ppm)	)	pp	om
		Purge Da	ata				
Time Purging Start	9.1	5am	Sampli	ng Metho	od/Equ	ipment (T	ick)
Timer Purging End	9.4	0am	Submer	sible Purr	р		
Purge Volume (litres)	41	itres	В	ailer		Ņ	/
Colour	Bro	own	Tube wit	h foot va	lve		
Recovery	Go	bod	Low Flo	w Pumpir	ıg		
Time	Litres Purged	Ph	EC (mS)	Temp	ORP	DO (mg/l)	Odour
09.40	41						None
	bservations:						



INCLA	ND	(V1 August 20	18)				
Project Number	8354-(	01-2019	Samp	ole Date		13-	03-2019
Client	DBFL Consul	ting Engineers	We	ell I.D.		E	3H-11
Site Name	Corne	lscourt	We	eather			Dry
Sampler I.D.	P	M	Weather P	revious 2	4hrs		Wet
		Well I	Data				
Casing Diameter (mm)	100	)mm	Total We	ll Depth (	m)		8.48
Standpipe Diam. (mm)	50	mm	Water Le	vel (mBG	L)		1.0
Stick Up (mm)	0.42	4mm	VOC Screen	in casing	(y/n)		Ν
Standpipe Type pvc, HDPE etc.	Р	VC	VOC D	ata (ppm)	)		ppm
		Purge	Data				
Time Purging Start	11.0	00am	Sam	oling Met	:hod/E	quipment	(Tick)
Timer Purging End	11.3	30am	Submer	sible Pum	р		
Purge Volume (litres)	40	litres	В	ailer			٧
Colour	Bro	own	Tube wit	h foot val	ve		
Recovery	G	bod	Low Floy	w Pumpir	ng		
	Litres					DO	
Time	Purged	Ph	EC (mS)	Temp	ORP	(mg/l)	Odour
11.30	40 litres						Hydrocarbon odour noted
	10 111 20						
Additional Comments/O	bservations:	<u> </u>		<u> </u>	I		<u> </u>