



CAUSEWAY
— GEOTECH

Mourne View, Skerries – Ground Investigation

Client: Fingal County Council

Client's Representative: McMahon Associates

Report No.: 23-0661

Date: July 2023

Status: Final for Issue

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Document Control Sheet

Report No.:		23-0661			
Project Title:		Mourne View, Skerries			
Client:		Fingal County Council			
Client's Representative:		McMahon Associates			
Revision:	A01	Status:	Final for Issue	Issue Date:	3 rd July 2023
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The works were conducted in accordance with:

British Standards Institute (2015) BS 5930:2015+A1:2020, Code of practice for ground investigations.

BS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland

Laboratory testing was conducted in accordance with:

British Standards Institute BS 1377:1990 parts 2, 4, 5, 7 and 9

METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015+A1:2020, The Code of Practice for Ground Investigation.

Abbreviations used on exploratory hole logs	
U	Nominal 100mm diameter undisturbed open tube sample (thick walled sampler).
UT	Nominal 100mm diameter undisturbed open tube sample (thin walled sampler).
P	Nominal 100mm diameter undisturbed piston sample.
B	Bulk disturbed sample.
LB	Large bulk disturbed sample.
D	Small disturbed sample.
C	Core sub-sample (displayed in the Field Records column on the logs).
L	Liner sample from dynamic sampled borehole.
W	Water sample.
ES / EW	Soil sample for environmental testing / Water sample for environmental testing.
SPT (s)	Standard penetration test using a split spoon sampler (small disturbed sample obtained).
SPT (c)	Standard penetration test using 60 degree solid cone.
(x,x/x,x,x,x)	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length.
(Y for Z/ Y for Z)	Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given seating or test length 'Z' (mm).
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm).
HVP / HVR	In situ hand vane test result (HVP) and vane test residual result (HVR). Results presented in kPa.
V VR	Shear vane test (borehole). Shear strength stated in kPa. V: undisturbed vane shear strength VR: remoulded vane shear strength
Soil consistency description	In cohesive soils, where samples are disturbed and there are no suitable laboratory tests, N values may be used to indicate consistency on borehole logs – a median relationship of $N \times 5 = C_u$ is used (as set out in Stroud & Butler 1975).
dd-mm-yyyy	Date at the end and start of shifts, shown at the relevant borehole depth. Corresponding casing and water depths shown in the adjacent columns.
▽	Water strike: initial depth of strike.
▼	Water strike: depth water rose to.
Abbreviations relating to rock core – reference Clause 36.4.4 of BS 5930: 2015+A1:2020	
TCR (%)	Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run.
SCR (%)	Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures.
RQD (%)	Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run.
FI	Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing.
NI	Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles.
AZCL	Assessed zone of core loss: The estimated depth range where core was not recovered.
DIF	Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring.
(xxx/xxx/xxx)	Spacing between discontinuities (minimum/average/maximum) measured in millimetres.

Mourne View, Skerries

1 AUTHORITY

On the instructions of McMahon Associates, (“the Client’s Representative”), acting on the behalf of Fingal County Council (“the Client”), a ground investigation was undertaken at the above location to provide geotechnical and environmental information for input to the design and construction of a proposed residential development.

This report details the work carried out both on site and in the geotechnical and chemical testing laboratories; it contains a description of the site and the works undertaken, the exploratory hole logs and the laboratory test results. A discussion on the recommendations for construction is also provided.

All information given in this report is based upon the ground conditions encountered during the ground investigation works, and on the results of the laboratory and field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client’s Representative in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

2 SCOPE

The extent of the investigation, as instructed by the Client’s Representative, included boreholes, trial pits, soil sampling, environmental sampling, in-situ and laboratory testing, and the preparation of a report on the findings including recommendations for construction.

3 DESCRIPTION OF SITE

As shown on the site location plan in Appendix A, the works were conducted with green areas of the existing Mourne View Estate in Skerries, Co. Dublin. The site is bounded by elsewhere by Realt na Mara school to the east and Skerries Rock housing estate to the south.

The site falls in elevation from south to north towards the existing Mourne View estate.

4 SITE OPERATIONS

4.1 Summary of site works

Site operations, which were conducted between 31st May and 2nd June 2023, comprised:

- five boreholes by dynamic (windowless) sampling
- one follow on dynamic probe
- eight machine dug trial pits
- an infiltration test performed in two trial pits
- plate load tests at three locations.

The exploratory holes and in-situ tests were located as instructed by the Client's Representative, and as shown on the exploratory hole location plan in Appendix A.

4.2 Boreholes

Five boreholes (BH01-BH05) were put down to completion by light percussion boring techniques using a Dando Terrier dynamic sampling rig. The boreholes were put down initially in 150mm diameter, reducing in diameter with depth as required, down to 50mm by use of the smallest sampler.

Hand dug inspection pits were carried out between ground level and 1.20m depth to ensure boreholes were put down clear of services or subsurface obstructions. The boreholes were taken to depths ranging between 2.70m and 4.00m where they were terminated on encountering virtual refusal on obstructions.

Disturbed (bulk and small bag) samples were taken within the encountered strata. Environmental samples were taken at standard intervals within made ground strata encountered. Undisturbed samples were not taken due to the granular nature of the soil encountered.

Standard penetration tests were carried out in accordance with BS EN 22476-3:2005+A1:2011 at standard depth intervals using the split spoon sampler (SPT_(s)) or solid cone attachment (SPT_(c)). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible. The *N*-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix I.

Any water strikes encountered during boring were recorded along with any changes in their levels as the borehole proceeded. Details of the water strikes are presented on the individual borehole logs.

Appendix B presents the borehole logs.

4.3 Dynamic probes

One dynamic probe (BH04DP) was conducted as a follow on from the borehole using the DPSHB method as described in BS EN ISO 22476-3:2005+A1:2011. The method entails a 63.5kg hammer falling 0.75m onto a 50.5mm diameter cone with an apex angle of 90°.

Appendix B provides the dynamic probe log on the sheet following the relevant borehole log in the form of plots, against depth, of the number of blows per 100mm penetration.

4.4 Trial Pits

Six trial pits (TP01–TP06 and ST01–ST02) were excavated using a 13t tracked excavator fitted with a 600mm wide bucket, to depths of 2.00–4.00m.

Environmental samples were taken within made ground encountered in each trial pit.

Disturbed (small jar and bulk bag) samples were taken at standard depth intervals and at change of strata.

Any water strikes encountered during excavation were recorded along with any changes in their levels as the excavation proceeded. The stability of the trial pit walls was noted on completion.

Appendix C presents the trial pit logs with photographs of the pits and arising provided in Appendix D.

4.5 Infiltration tests

An infiltration/soakaway test was carried out in ST01 and ST02 in accordance with BRE Digest 365 - Soakaways (BRE, 2016). The tests were conducted in similarly numbered trial pits.

Appendix E presents the results and analysis of the infiltration test. The absence of the outflow from the pits precluded calculation of infiltration coefficients.

4.6 Plate load tests

Plate load tests were carried out at varying depths at three locations TP01, TP03 and TP04.

The plate load tests were conducted as incremental loading tests in accordance with Clause 4.1 of BS1377: Part 9: 1990 (British Standards Institute, 1990). A 450mm diameter bearing plate was used with five equal loadings to a maximum pressure of approximately 500kPa, followed by unloading.

Plate movements were measured using three strain gauges fitted to a remotely fixed tripod frame. Each loading increment was maintained until the plate movement had essentially stopped.

The test results provided in Appendix F are as follows:

- plots of the plate settlements, average of the three gauges, against pressure.

The Modulus of Subgrade Reaction, k , is estimated by applying a “best fit” to the settlement-pressure plots, and is reported in MPa/m. The numerical value represents the pressure, in kPa, on the bearing plate that induces 1.25mm of settlement.

An approximate CBR value was estimated using the guidance provided in the Interim Advice Note 73/06 (Revision 1, 2009) of the Design Guidance for Road Pavement Foundations (Draft HD25). The document provides methods to convert the measured k value to the equivalent for a 762mm diameter plate and the consequent relationship with CBR. This method of estimating an equivalent CBR value is relatively conservative.

4.7 Surveying

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R10 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish Transverse Mercator) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole location plan presented in Appendix A shows these as-built positions.

5 LABORATORY WORK

Upon their receipt in the laboratory, all disturbed samples were carefully examined and accurately described, and their descriptions incorporated into the borehole logs.

5.1 Geotechnical laboratory testing of soils

Laboratory testing of soils comprised:

- **soil classification:** moisture content measurement, Atterberg Limit tests and particle size distribution analysis.
- **compaction related:** Moisture Condition Value, California bearing ratio tests
- **soil chemistry:** pH, water soluble sulphate content and total sulphate content

Laboratory testing of soils samples was carried out in accordance with British Standards Institute: *BS 1377, Methods of test for soils for civil engineering purposes; Part 1 (2016), and Parts 2-9 (1990)*.

The test results are presented in Appendix G.

5.2 Environmental laboratory testing of soils

Environmental testing, as specified by the Client's Representative was conducted on selected environmental soil samples by Derwentside Environmental Testing Services in Consett, Durham.

Rilta suite of analysis was carried out on several samples for landfill disposal criteria. This included testing for a range of determinants, including:

Testing was carried out for a range of determinants, including:

- Metals
- Speciated total petroleum hydrocarbons (TPH)
- Speciated polycyclic aromatic hydrocarbons (PAH)
- BTEX compounds
- Volatile Organic Compounds (VOCs)
- Semi-Volatile Organic Compounds (SVOCs)
- Polychlorinated biphenyls (PCBs)
- Phenols
- Organic matter
- Total Organic Carbon (TOC)
- Cyanides
- Asbestos screen
- Sulphate and sulphide
- Sulphur
- Phosphate
- Calcium
- pH
- Waste acceptance criteria (WAC)

Results of environmental laboratory testing are presented in Appendix H.

The results of the above testing were used to compile a waste classification report. The report is presented in Appendix J.

6 GROUND CONDITIONS

6.1 General geology of the area

Published geological mapping indicate the superficial deposits underlying the site comprise fluvioglacial sands and gravels. These deposits are underlain by siltstone and sandstone of the Skerries Formation.

6.2 Ground types encountered during investigation of the site

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Topsoil:** encountered across the site with a thickness of 300mm.
- **Made Ground (fill):** reworked sandy gravelly clay fill and sandy clayey gravel encountered across the site to a maximum extent of 1.00m in BH01. Fragments of tarmac were encountered to a depth of 0.90m in ST01.
- **Fluvioglacial deposits:** typically, medium dense sands and gravels interspersed with layers of firm to stiff sandy gravelly clay or silt.
- **Possible Bedrock:** Possible bedrock was encountered in TP01 with the soil exhibiting a relict bedding structure associated with bedrock. Possible weathered bedrock was also encountered in ST01 and BH01 in the most northern part of the site at depths of 2.10m and 2.70m respectively.

6.3 Groundwater

Details of the individual groundwater strikes, along with any relative changes in levels as works proceeded, are presented on the exploratory hole logs for each location.

Groundwater was encountered during percussion boring and pit excavation as water strikes at depths as shown in Table 1 below.

Table 1 Groundwater strikes encountered during the ground investigation

GI Ref	Water Level (mbgl)	Comments
BH02	2.20	
BH04	3.00	
TP01	2.30	Fast inflow
TP04	3.40	Slow seepage
TP05	2.85	Seepage
ST06	3.60	Seepage

Groundwater was not noted during drilling at of the other borehole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out any additional groundwater strikes and the possibility of encountering groundwater at other depths during excavation works should not be ruled out.

Groundwater was not encountered in any of the other trial pits.

Seasonal variation in groundwater levels should also be factored into design considerations.

7 DISCUSSION

7.1 Proposed construction

It is proposed to construct a new residential development on the site with associated infrastructure.

No further details were available to Causeway Geotech at the time of preparing this report and any designs based on the recommendations or conclusions within this report should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory holes. Causeway Geotech were commissioned to provide a geotechnical report, and it is outwith our remit to advise on structure design.

7.2 Recommendations for construction

7.2.1 Summary

Based on the presence of medium dense sand/gravel of firm clay at relatively shallow depths across the footprint of the proposed building, the implementation of traditional shallow (spread) foundations (strip/pad and trench fill) are considered suitable.

7.2.2 Soil strength parameters

When estimating the shear strength of fine soils (silt/clay), reference is made to the results of Standard Penetration Tests (SPT's) carried out within the boreholes. The undrained shear strength of fine soils can be estimated using the correlation developed by Stroud & Butler:

$$C_u = f_1 \times N$$

where f_1 is typically in the range 4 to 6. A median f_1 value of 5 is adopted for this report.

For granular soils (sand/gravel), a graphical relationship between SPT "N" value and angle of shearing resistance, ϕ , has been developed by Peck, Hanson and Thorburn. This is published in *Foundation Design and Construction* (Tomlinson, 2001) and is referenced in this report when deriving angles of shearing resistance for the gravel soils.

7.2.3 Foundations and ground floor construction

Foundations should transfer loading to below any Made Ground or subsoil. The recommended foundation construction and allowable bearing pressure (ABP) at the borehole locations are presented in Table 2.

Table 2: Construction recommendations

Borehole	Depth below EGL* to suitable bearing stratum	Estimated ABP (kPa)	Strata description	Foundation type	Ground floor construction	Groundwater
BH01	1.20m	90	Loose GRAVEL	Strip & pad	Suspended	Not encountered
BH02	1.20m	160	Stiff SILT	Strip & pad	Suspended	Strike at 2.20m
BH03	1.20m	120	Medium dense SAND	Strip & pad	Suspended	Not encountered
BH04	1.20m	140	Medium dense SAND	Strip & pad	Suspended	Strike at 3.00m
BH05	1.20m	100	Firm CLAY	Strip & pad	Suspended	Not encountered

*Existing Ground Level

Based on the findings of the ground investigation, spread foundations (strip/pad and trench fill) are considered suitable with estimated allowable bearing pressures between 90kPa and 160kPa at depths between 1.20m on loose gravel, medium dense sand or firm clay. If higher allowable bearing pressure are required, these will be achievable at deeper depths.

Possible bedrock was encountered at relatively shallow depths in TP01. If any formation levels are proposed possible bedrock level, it would be prudent to undertake rotary drilling to confirm bedrock depths.

The base of foundation excavations should be thoroughly inspected in accordance with the Earthworks Specification; any soft or loose soils removed with the resultant void backfilled with ST1 concrete or engineered fill. A consistent bearing stratum should be provided for any building unit to limit differential settlements.

Given the predominance of the silt and granular strata, excavations for foundations have the potential to be unstable. Where space allows, instability can be minimised by battering the side slopes at 2 vertical to 1 horizontal and by limiting the duration that the excavation is open. Groundwater control, where required, will be possible by pumping from sumps formed in the base of excavations.

7.2.4 Floor slabs

Floor slabs should not bear directly onto Made Ground or soft soils. Consequently, the use of ground bearing floor slabs is considered appropriate following the removal of any surface Made Ground and soft clay layers and their replacement using well-graded well-compacted granular fill. However, a suspended floor slab should be adopted where the difference in levels of the proposed floor and the base of Made Ground/soft soils is greater than 600mm.

Therefore, given the depth to the base of Made Ground and relative low strength of upper soil layers, a suspended floor slab may be required over parts of the site. The use of intermediate lines of support stub walls would reduce the spans required for flooring units.

7.2.5 Excavations for services

For the installation of services ducts/trenches, it is suggested that open trenching will be the most practicable construction method. Generally speaking, the ground conditions should render the use of open trenching by backhoe excavator possible, with some trench support required based on the extensive granular stratum encountered across the site.

Where working in open trenches, it is thought that trench support systems, by way of a trench box (or possibly sheet piles), will be required to maintain trench stability and safe working conditions. Groundwater control at these locations should be possible by means of sump pumping.

To preclude the eventuality of differential settlements in pipes, they should be laid on a consistent stratum of appropriate allowable bearing capacity and protected with appropriate fill cover.

Where ducts and chambers must be installed in areas where localised soft spots are encountered, the use of geogrid reinforcement along the base of the excavation is recommended. This will stiffen the base of the trench and help control longitudinal differential settlement.

Backfilling of trenches may be completed by using compacted Cl 804 granular fill and reinstated as appropriate.

7.2.6 Rock excavatability/bulk excavations

The formation levels of the proposed development are not known at the time of issuing this report however given the elevation change across the site it is likely some bulk excavations will be required as part of the development.

Weathered bedrock was encountered at a depth of 0.85m in TP01 and was excavated with relative ease using a 13t excavator with toothed bucket. Although unlikely that any bulk excavations will encounter competent bedrock, the possibility of locally breaking out rock cannot be ruled out given the elevation change across the site. However, it is likely that most of any bulk excavations will be within overburden strata comprising loose to medium dense sands or gravels or firm to stiff clay/silt.

7.2.7 Soil aggressivity

An assessment of the Aggressive Chemical Environment for Concrete (ACEC) was undertaken through reference to the Building Research Establishment (BRE) Special Digest 1 (2017).

As noted by BRE Special Digest 1, sulphates in the soil and groundwater are the chemical agents most likely to attack concrete. The extent to which sulphates affect concrete is linked to their concentrations, the type of ground, the presence of groundwater, the type of concrete and the form of construction in which concrete is used.

BRE Special Digest 1 identifies four different categories of site which require specific procedures for investigation for aggressive ground conditions:

- Sites not subjected to previous industrial development and not perceived as containing pyrite;
- Sites not subjected to previous industrial development and perceived as containing pyrite;
- Brownfield sites not perceived as containing pyrite;
- Brownfield sites perceived as containing pyrite.

For the purposes of this report the site was classified as not having been subject to previous industrial development and not perceived as containing pyrite.

The results of chemical tests (pH and water soluble sulphate contents) on soil samples indicate Design Sulphate Class DS-1 and ACEC Class AC-1s – reference Table C1 of BRE Special Digest 1 (Building Research Establishment, 2005). The Special Digest does not require any measures to protect underground concrete elements greater than 140mm thick.

7.2.8 Access roads, car parks and hard standing

Based on a summary of the CBR tests undertaken at the site, it is envisaged that the strata tested would be suitable for the placement of road make up layers. All three tests indicated CBR values in excess of 37% at the depths tested.

Table 2.1 of volume 7 section 2 of the Design Manual for Roads and Bridges (below), gives guidance on the average thickness of the pavement layers in relation to the CBR results. As can be seen, a CBR in excess of 15% does not require any capping layers, however a sub-base thickness of 200mm is suggested.

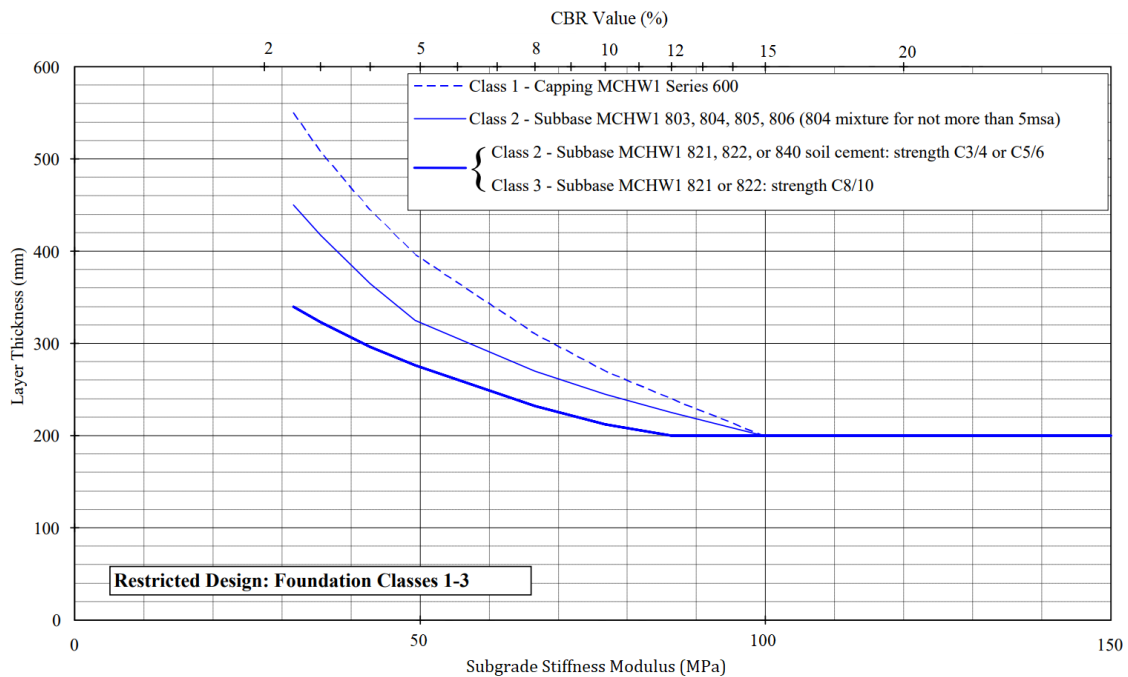


Table 2.1 (DMRB Vol.7 Sec2) 2009

It is recommended that further testing be undertaken during the course of construction works at intervals as set out in the Earthworks Specification, and should any areas indicate lower than expected value, the above plot should be used to determine the thicknesses of any capping or sub-base layers that may need to be placed in these areas.

The use of geosynthetics in the construction of paved areas, will be beneficial, particularly in areas of Made Ground. These could include a geosynthetic (e.g., a geogrid) at subgrade level with further benefit gained by incorporating further layer(s) within the capping/sub-base layer. Road design should be undertaken by a specialist earthworks contractor/designer.

7.3 Infiltration drainage

In soakaway tests carried out in ST01 and ST02, the absence of outflow precluded the calculation of any infiltration coefficients. The low-permeability soils are therefore considered to be poor infiltration media and would be deemed unsuitable for the implementation of infiltration drainage systems.

It should be noted however that a soakaway may be suitable on another part of the site based on the extensive granular material encountered.

Reference should be made the Sustainable Drainage Systems (SuDS) design guidance, taking into account meteorological conditions and a hydrogeological assessment.

7.4 Material re-use

In assessing the reusability of soil several approaches may be considered. Most commonly, the following parameters are used:

- a) moisture content and the plastic limit / moisture content ratio of potential Cohesive Fill: an upper bound ratio of 1.2 is often adopted.
- b) undrained shear strength (undisturbed and remoulded) of potential Cohesive Fill: a lower bound strength of 40kPa is often adopted.
- c) Moisture Condition Value (MCV) of potential Cohesive Fill: a lower bound MCV of 8 is often adopted.
- d) California Bearing Ratio (CBR) of potential Cohesive Fill: a lower bound CBR of 2% is often adopted.
- e) measured SPT *N*value of potential Cohesive Fill: a lower bound value of 12 is often adopted, using the published relationships between *N*value and c_u , Clayton (1995). However, the individual blow counts need to be examined to allow assessment of whether *N*values have been elevated by the presence of coarse gravel or cobbles.
- f) particle size distribution, in particular the fines content, of potential Granular Fill.
- g) moisture content of potential Granular Fill as reflected by laboratory test results and the records of groundwater strikes in coarse grained soils
- h) coefficient of uniformity, C_u , of granular material.

Allowance will also have to be made of construction expedients and their impact on the proportion of reusable soil, including:

- the effects of weathering of the near surface soils
- the presence of moisture susceptible soils
- the difficulties of separating layers and lenses of potential Granular and Cohesive Fill
- the presence of groundwater in lenses and layers of coarse grained soils.

Note that not all the aforementioned parameters are applicable in each case, more so a combination of those most applicable.

In assessing its suitability for use as fill, reference is made to the insitu test results and the laboratory testing conducted on representative disturbed samples obtained from the trial pits and boreholes during the ground investigation.

PSD results have been compared against grades set out in the TII document – “*Specification for Road Works Series 600 – Earthworks*”, to assess its use for refill elsewhere on the site. Based on the PSD results the material can be classed as both Class 1 General Granular Fill and Class 2 General Cohesive Fill (majority) further to subject testing with breakdown of material shown in Table 3 below.

Table 3 Summary of material types present on site in terms of reusability based on PSD results

1A/1B	2A/2B	2C1/2C2
8%	42%	50%

Material tested for reusability tested was concentrated in the upper 1-2m as this is likely to be the maximum extent of any bulk excavations on site.

Single point MCV tests (5 No.) all indicated values over 8.5, with 4/5 >13.3. Single point CBR tests indicated values of 2.2-5% with one value indicating a CBR of 20%. It is likely therefore, given the relatively high strength, low natural moisture content, coupled with the relatively high MCV values that these soils would possibly be suitable for re-use as fill. Seasonal variations in the groundwater table will affect the natural moisture content of these soils and as such will affect their suitability for re-use.

The lower firm/stiff glacial till soils will be suitable for re-use as general fill. It should be noted that the field logs make note of low cobble content across the area in concern; these would have tended not to have been included in the samples taken for testing and as such have not been considered in the above assessment. Certain pockets of coarse soils encountered may fall under classification of starter layers.

The above assessment is based on the information gleaned from the investigation points. When carrying out excavation works, further on-site testing should be conducted to verify the type/classification and suitability of fill material.

7.5 Waste classification

For consideration of material to be removed from site, a waste classification of the solid soil laboratory results was completed using HazWasteOnline™ software. A copy of the Waste Classification report is included at Appendix J. The Waste Classification report shows that the material tested can be classified as non-hazardous material considering the List of Wastes (LoW) code 17 for Construction and Demolition Wastes (including soils excavated from contaminated sites), specifically 17 05 03* and 17 05 04.

Following completion of the waste classification, and to determine a suitable disposal route for the soil, assessment of the WAC analysis of the samples was completed. The laboratory results of the WAC testing indicate that the soils from the site are suitable for disposal as Inert waste to an appropriate licenced facility.

It is noted that this waste classification assessment has been based solely on the available samples results and corresponding investigation findings. In making this assessment all due care and attention to available and relevant legislative and guidance frameworks has been taken in arriving at the conclusions.

Also, potential areas of localised contamination outside the areas of the investigation cannot be discounted. Any potential contamination identified during site development work by visual or olfactory means should be investigated, including further laboratory testing, and appropriate health & safety, waste disposal and remediation measures adopted. Additional testing of the soils to be disposed from site may also be requested by the individual landfill before acceptance at their facility.

8 REFERENCES

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland.

IS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. National Standards Authority of Ireland.

BS 5930: 2015+A1:2020: Code of practice for ground investigations. British Standards Institution.

BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

BS EN ISO 14688-2:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification.

BS 1377: 1990: Methods of test for soils for civil engineering purposes. British Standards Institution.

BS EN ISO 14689-1:2018: Geotechnical investigation and testing. Identification and classification of rock. Identification and description.

BS EN ISO 22476-3:2005+A1:2011: Geotechnical investigation and testing. Field testing. Standard penetration test.

Building Research Establishment (2005) BRE Special Digest 1, Concrete in aggressive ground.

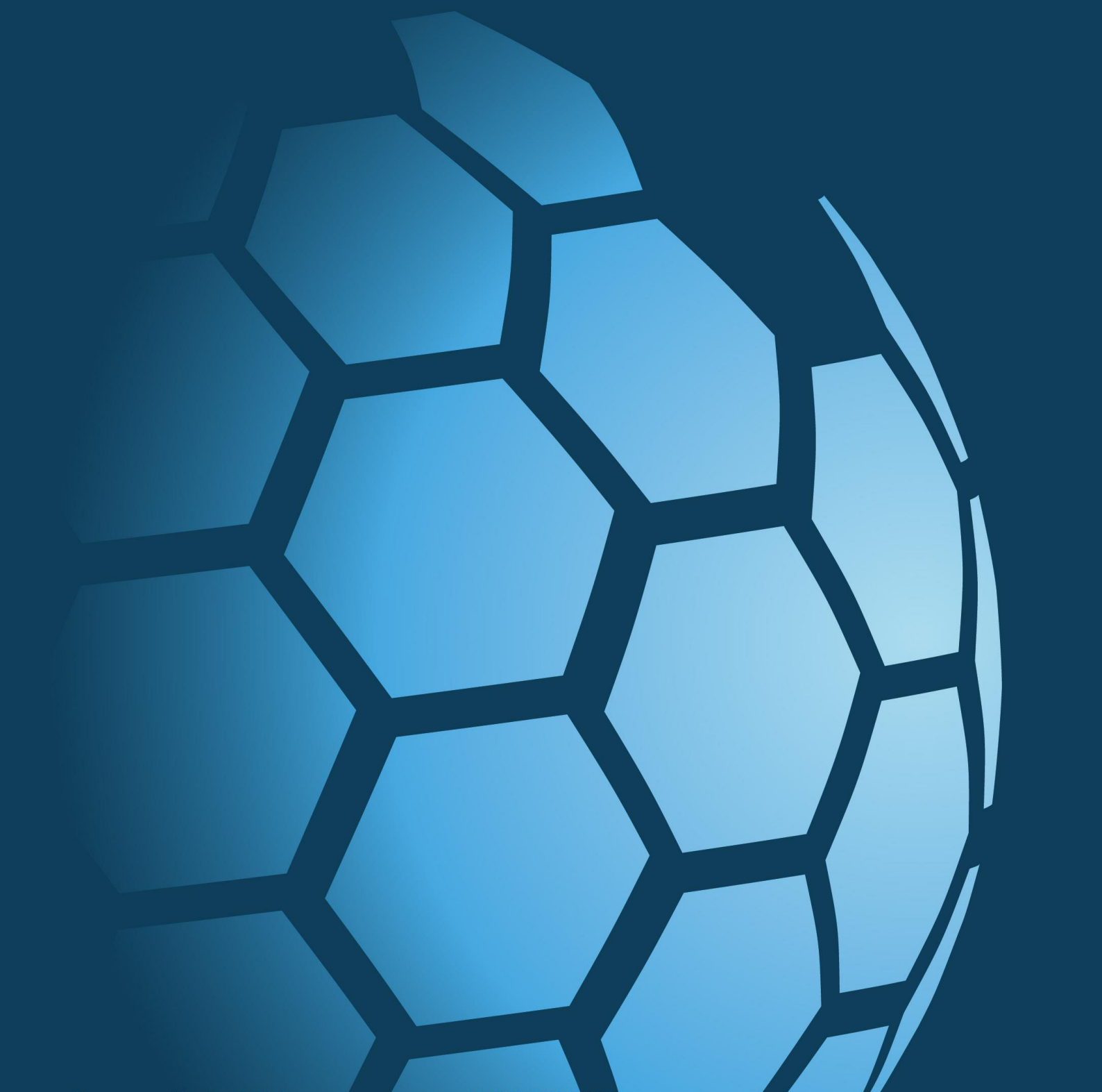
Building Research Establishment (2007), BRE Digest 365: Soakaways.

Land contamination risk management (LCRM), (2020) Environment Agency.



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APPENDIX A
SITE AND EXPLORATORY HOLE LOCATION PLANS





Project No.: 23-0661

Client: Fingal County Council

Project Name: Mourne View, Skerries

Client's Representative: McMahon Associates

Legend Key



Title:
Site Location Plan

Last Revised:
20/06/2023

Scale:
1:15000

 Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

700 Metres
2000 Feet





Project No.: 23-0661

Client: Fingal County Council

Project Name: Mourne View, Skerries

Client's Representative: McMahon Associates

Legend Key

-  Locations By Type - DS
-  Locations By Type - TP



Title:
Exploratory Hole Location Plan

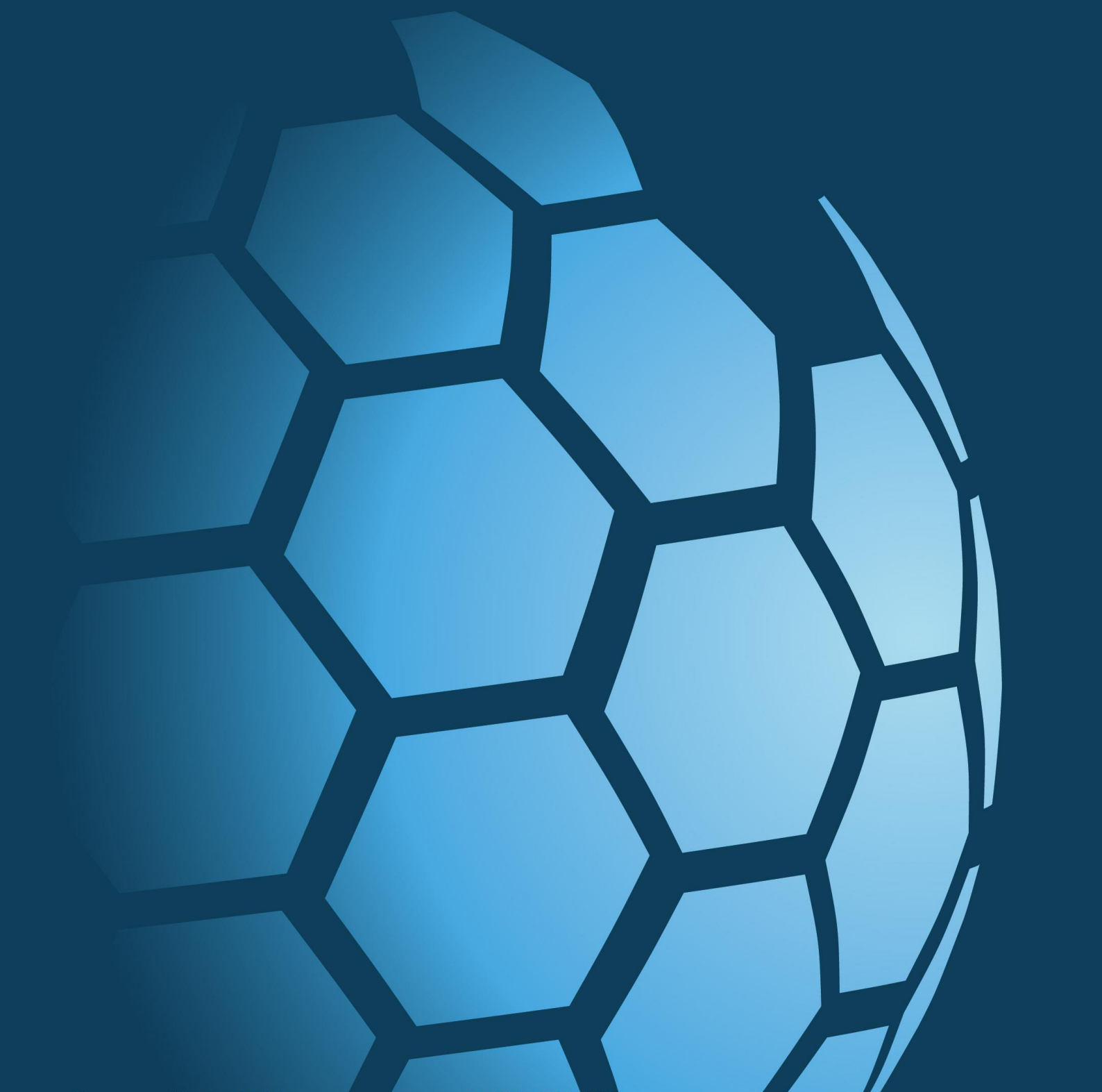
Last Revised:
20/06/2023

Scale:
1:1000



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APPENDIX B
BOREHOLE LOGS





Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth: 3.00 m	Start Date: 01/06/2023	Driller: JFSC	Sheet 1 of 1 Scale: 1:50
Dynamic Sampling	Dando Terrier	0.00	3.00	724336.25 E 760648.80 N	Elevation: 10.54 mOD	End Date: 01/06/2023	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00 - 0.30	B1							TOPSOIL: with fine roots (0.5-2.0mm).		
0.30 - 1.00	B2				10.24	0.30		MADE GROUND: Firm brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is rounded fine to coarse. Cobbles are rounded.		
0.50	ES3									
1.00	ES4				9.54	1.00		Loose brown very sandy clayey rounded fine to medium GRAVEL. Sand is fine to coarse.		
1.00 - 2.00	B5									
1.20 - 1.65	SPT (C)	N=10 (2,2/1,3,3,3) Hammer SN = 0696	0.00	Dry						
2.00 - 2.30	B6				8.54	2.00		Loose greyish brown very sandy clayey angular fine to coarse GRAVEL. Sand is fine to coarse.		
2.00 - 2.45	SPT (C)	N=8 (2,1/2,2,2,2) Hammer SN = 0696	0.00	Dry						
2.30 - 2.70	B7				8.24	2.30		Soft light brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular fine to coarse.		
2.70 - 3.00	B8				7.84	2.70		Dense grey slightly sandy very angular fine to coarse GRAVEL. Sand is fine to coarse. (Possible bedrock)		
3.00 - 3.20	SPT (C)	50 (25 for 115mm/50 for 80mm) Hammer SN = 0696	0.00	Dry	7.54	3.00		End of Borehole at 3.00m		

Water Strikes				Casing Details		Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter	
						Inspection pit hand dug to 1.20m. No groundwater encountered.
Termination Reason						Last Updated
Terminated on refusal.						03/07/2023





Method Dynamic Sampling	Plant Used Dando Terrier	Top (m) 0.00	Base (m) 2.75	Coordinates 724322.40 E 760630.64 N	Final Depth: 2.75 m	Start Date: 01/06/2023	Driller: JFSC	Sheet 1 of 1 Scale: 1:50
					Elevation: 10.75 mOD	End Date: 01/06/2023	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00 - 0.30	B1							TOPSOIL: with fine roots (0.5-2.0mm).		
0.30 - 0.90	B2				10.45	0.30		MADE GROUND: Firm brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is rounded fine to coarse. Cobbles are subrounded.		
0.50	ES3									
0.90 - 1.20	B4				9.85	0.90		Medium dense brown very sandy clayey rounded fine to coarse GRAVEL. Sand is fine to coarse.		
1.00	ES5									
1.20 - 1.90	B6				9.55	1.20		Stiff greyish brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is angular fine to coarse.		
1.20 - 1.65	SPT (C)	N=16 (2,3/4,4,4,4) Hammer SN = 0696	0.00	Dry						
1.90 - 2.75	B7				8.85	1.90		Dense grey slightly sandy very angular fine to coarse GRAVEL. Sand is fine to coarse. (Possible bedrock)		
2.00 - 2.45	SPT (C)	N=31 (4,5/8,8,8,7) Hammer SN = 0696 Water strike at 2.20m	0.00	Dry						
2.75 - 2.88	SPT (C)	50 (25 for 60mm/50 for 70mm) Hammer SN = 0696	0.00	Dry	8.00	2.75		End of Borehole at 2.75m		

Water Strikes				Casing Details		Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter	
2.20	0.00	20	2.20			Inspection pit hand dug to 1.20m.
Termination Reason						Last Updated
Terminated on refusal.						03/07/2023





Project No.
23-0661

Project Name: Mourne View, Skerries

Borehole ID

Client: Fingal County Council

BH03

Client's Rep: McMahon Associates

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth: 2.70 m	Start Date: 01/06/2023	Driller: JFSC	Sheet 1 of 1 Scale: 1:50
Dynamic Sampling	Dando Terrier	0.00	2.70	724365.49 E 760618.07 N	Elevation: 12.14 mOD	End Date: 01/06/2023	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00 - 0.30	B1							TOPSOIL: with fine roots (0.5-2.0mm).		
0.30 - 0.50	B2				11.84	0.30		MADE GROUND: Firm brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is rounded fine to coarse. Cobbles are subrounded. Medium dense brown very sandy clayey rounded fine to coarse GRAVEL. Sand is fine to coarse.		
0.50	ES3				11.64	0.50				
0.50 - 1.30	B4									
1.00	ES5									
1.20 - 1.65	SPT (C)	N=12 (3,4/4,4,2,2) Hammer SN = 0696	0.00	Dry	10.84	1.30		Firm slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular fine to medium.		
1.30 - 2.40	B6									
2.00 - 2.45	SPT (C)	N=14 (2,1/2,2,2,8) Hammer SN = 0696	0.00	Dry						
2.40 - 2.70	B7				9.74	2.40		Dense grey slightly sandy very angular fine to coarse GRAVEL. Sand is fine to coarse. (Possible bedrock)		
2.70 - 2.82	SPT (C)	50 (25 for 70mm/50 for 50mm) Hammer SN = 0696	0.00	Dry	9.44	2.70		End of Borehole at 2.70m		

Water Strikes				Casing Details		Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter	
						Inspection pit hand dug to 1.20m. No groundwater encountered.
Termination Reason						Last Updated
Terminated on refusal.						03/07/2023





Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth: 4.00 m	Start Date: 02/06/2023	Driller: JFSC	Sheet 1 of 1 Scale: 1:50
Dynamic Sampling	Dando Terrier	0.00	4.00	724254.44 E 760612.61 N	Elevation: 11.86 mOD	End Date: 02/06/2023	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00 - 0.30	B1							TOPSOIL: with fine roots (0.5-2.0mm).		
0.30 - 0.70	B2				11.56	0.30		MADE GROUND: Firm brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is rounded fine to coarse. Cobbles are rounded.		
0.50	ES3									
0.70 - 1.50	B4				11.16	0.70		Medium dense brown very gravelly clayey fine to coarse SAND. Gravel is angular fine to coarse.		
1.00	ES5									
1.20 - 1.65	SPT (C)	N=14 (2,4/4,4,3,3) Hammer SN = 0696	0.00	Dry						
1.50 - 2.90	B6				10.36	1.50		Very stiff greyish brown slightly gravelly sandy CLAY with bands of brown fine to coarse sand. Sand is fine to coarse. Gravel is subrounded fine to medium.		
2.00 - 2.45	SPT (S)	N=39 (4,8/10,9,10,10) Hammer SN = 0696	0.00	Dry						
2.90 - 4.00	B7				8.96	2.90		Dense greyish brown sandy silty rounded fine to coarse GRAVEL. Sand is fine to coarse.		
3.00 - 3.45	SPT (C)	N=34 (5,6/6,8,11,9) Hammer SN = 0696 Water strike at 3.00m	0.00	Dry						
4.00 - 4.45	SPT (C)	N=41 (10,10/10,11,10,10) Hammer SN = 0696	1.60	Dry	7.86	4.00		End of Borehole at 4.00m		

Water Strikes				Casing Details		Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter	
3.00	1.60	20	3.00	1.60	150	Inspection pit hand dug to 1.20m.
Termination Reason						Last Updated
Terminated due to borehole collapse. Continued by dynamic probe.						03/07/2023





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Project No. 23-0661	Project Name: Mourne View, Skerries			Probe ID BH04DP
Coordinates 724254.44 E 760612.61 N	Client: Fingal County Council Client's Representative: McMahon Associates			
Method: Dynamic Probing	Elevation 11.86 mOD	Final Depth: 5.08	Date: 02/06/2023	Operator: JFSC
Probe Type: DPSH-B				Sheet 1 of 1 Scale: 1:50 FINAL

Depth (m)	Blows/100mm					Torque (Nm)
	10	20	30	40		
1						
2						
3						
4						
5	7	13	15	21	32	43
6						50
7						
8						
9						

Fall Height: 750 mm	Remarks Termination Reason Terminated on refusal.	Last Updated 03/07/2023	
Hammer Mass: 63.5 kg			
Cone Diameter: 50.5 mm			



Project No.
23-0661

Project Name: Mourne View, Skerries

Borehole ID
BH05

Client: Fingal County Council

Client's Rep: McMahon Associates

Method Dynamic Sampling	Plant Used Dando Terrier	Top (m) 0.00	Base (m) 2.90	Coordinates 724230.89 E 760596.16 N	Final Depth: 2.90 m	Start Date: 02/06/2023	Driller: JFSC	Sheet 1 of 1 Scale: 1:50
					Elevation: 12.44 mOD	End Date: 02/06/2023	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00 - 0.30	B1							TOPSOIL: with fine roots (0.5-2.0mm).		
0.30 - 1.20	B2				12.14	0.30		Firm brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is rounded fine to coarse. Cobbles are rounded.		
0.50	ES3									
1.00	ES4									
1.20 - 1.70	B5									
1.20 - 1.65	SPT (C)	N=10 (2,2/2,3,3,2) Hammer SN = 0696	0.00	Dry						
1.70 - 2.60	B6				10.74	1.70		Medium dense brown very gravelly very silty fine to coarse SAND. Gravel is subangular fine to medium.		
2.00 - 2.45	SPT (C)	N=19 (2,4/4,5,6,4) Hammer SN = 0696	0.00	Dry						
2.60 - 2.90	B7				9.84	2.60		Dense grey slightly sandy very angular fine to coarse GRAVEL. Sand is fine to coarse. (Possible bedrock)		
2.90 - 3.32	SPT (C)	50 (8,10/50 for 275mm) Hammer SN = 0696	0.00	Dry	9.54	2.90		End of Borehole at 2.90m		

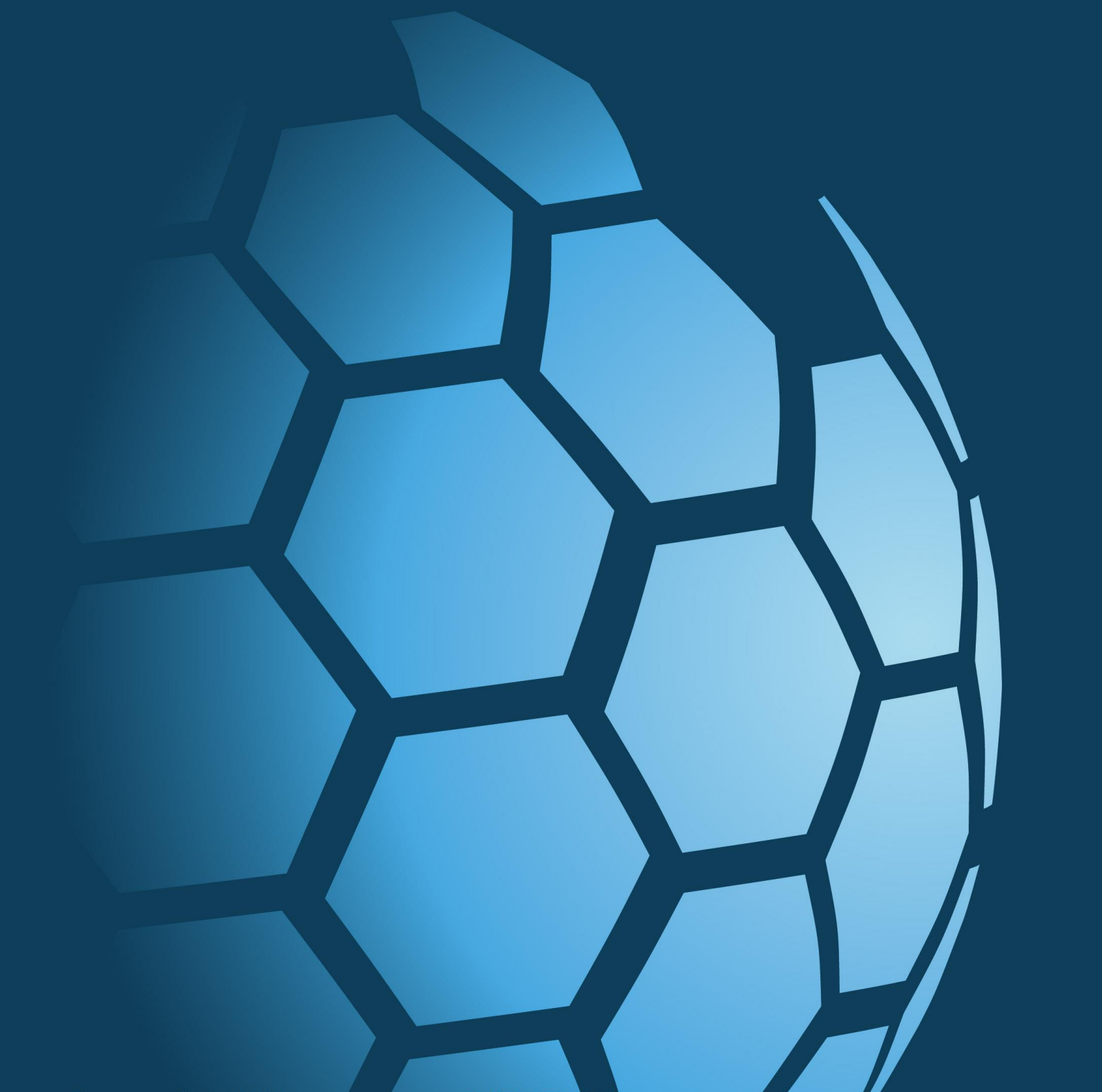
Water Strikes				Casing Details		Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter	
						Inspection pit hand dug to 1.20m. No groundwater encountered.
Termination Reason						Last Updated
Terminated on refusal.						03/07/2023




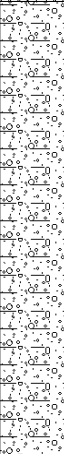





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APPENDIX C
TRIAL PIT LOGS



		Project No. 23-0661	Project Name: Mourne View, Skerries		Trial Pit ID TP01		
Method: Trial Pitting		Coordinates 724351.78 E 760661.48 N	Client: Fingal County Council		Client's Representative: McMahon Associates		
Plant: 13t Tracked Excavator		Elevation 9.09 mOD	Date: 31/05/2023		Logger: RS	FINAL	
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1		8.79	0.30		MADE GROUND: Stiff brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse.	
1.00 1.00	B3 ES2		8.24	0.85		MADE GROUND: Brown sandy very clayey subangular fine to coarse GRAVEL. Sand is fine to coarse.	
2.00	B4	Fast inflow at 2.3m	6.74	2.35		Brownish grey sandy clayey subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are of mixed lithologies predominantly limestone. (Possible bedrock)	
					End of trial pit at 2.35m		▼
Water Strikes Struck at (m) Remarks 2.30 Fast inflow at 2.3m		Depth: 2.35 Width: 1.00 Length: 4.00 Stability: Stable	Remarks: Termination Reason Terminated at refusal on boulder / possible bedrock.		Last Updated 03/07/2023		



Project No. 23-0661	Project Name: Mourne View, Skerries	Trial Pit ID TP02
Coordinates 724347.27 E 760635.09 N	Client: Fingal County Council	
Method: Trial Pitting	Client's Representative: McMahon Associates	Sheet 1 of 1 Scale: 1:25
Plant: 13t Tracked Excavator	Elevation 11.14 mOD	Date: 31/05/2023
		Logger: RS
		FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1					MADE GROUND: Firm greyish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of mixed lithologies.	
1.00 1.00	B3 ES2		10.34	0.80		Stiff dark brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of mixed lithologies.	
1.80	B4		9.74	1.40		Greyish brown sandy clayey subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse.	
2.00	B5		9.14	2.00		End of trial pit at 2.00m	

Water Strikes		Depth: 2.00 Width: 1.00 Length: 4.00	Remarks: No groundwater encountered.
Struck at (m)	Remarks		
		Stability: Stable	Termination Reason Terminated at refusal on boulder / possible bedrock.
		Last Updated 03/07/2023	



Project No.
23-0661

Project Name:
Mourne View, Skerries

Trial Pit ID

Coordinates

Client:
Fingal County Council

TP03

724350.15 E
760607.52 N

Client's Representative:
McMahon Associates

Sheet 1 of 1
Scale: 1:25

Method:
Trial Pitting

Plant:
13t Tracked Excavator

Elevation
12.23 mOD

Date:
31/05/2023

Logger:
RS

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1					MADE GROUND: Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse.	
1.00 1.00	B3 ES2		11.38	0.85		Brown very sandy clayey angular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular.	
2.00	B4		10.68	1.55		Firm dark brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium.	
3.00	B5		9.73	2.50		Brownish grey gravelly silty fine to coarse SAND with low cobble content. Gravel is subangular fine to coarse. Cobbles are subrounded of mixed lithologies.	
			9.03	3.20		End of trial pit at 3.20m	

Water Strikes		Depth: 3.20 Width: 1.00 Length: 4.00	Remarks: No groundwater encountered.
Struck at (m)	Remarks		
		Stability: Stable	Termination Reason Terminated at refusal on boulder / possible bedrock.
		Last Updated 03/07/2023	



Project No. 23-0661	Project Name: Mourne View, Skerries	Trial Pit ID TP04
Coordinates 724271.74 E 760596.60 N	Client: Fingal County Council	
Method: Trial Pitting	Client's Representative: McMahon Associates	Sheet 1 of 1 Scale: 1:25
Plant: 13t Tracked Excavator	Elevation 12.21 mOD	Date: 31/05/2023
		Logger: RS
		FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1		11.46	0.75		MADE GROUND: Stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular.	
1.00 1.00	B3 ES2		11.01	1.20		Brown sandy very clayey angular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular.	
2.00	B4					Firm brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular.	
3.00	B5		8.91	3.30		Brown very sandy very silty subrounded fine to coarse GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are subrounded.	▼
4.00	B6	Slow seepage at 3.4m	8.21	4.00		End of trial pit at 4.00m	

Water Strikes		Depth: 4.00 Width: 1.00 Length: 3.00	Remarks:
Struck at (m)	Remarks		
3.40	Slow seepage at 3.4m		
Stability: Stable		Termination Reason Terminated at refusal on boulder / possible bedrock.	Last Updated 03/07/2023





Project No. 23-0661	Project Name: Mourne View, Skerries	Trial Pit ID TP05
Coordinates 724228.64 E 760591.96 N	Client: Fingal County Council	
Method: Trial Pitting	Client's Representative: McMahon Associates	Sheet 1 of 1 Scale: 1:25
Plant: 13t Tracked Excavator	Elevation 12.54 mOD	Date: 31/05/2023
		Logger: RS
		FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1		12.14	0.40		MADE GROUND: Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse.	
1.00	B3		11.64	0.90		Brown very sandy very clayey subangular fine to coarse GRAVEL. Sand is fine to coarse.	
1.00	ES2					Stiff brownish yellow slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular.	
1.20	B4						
1.70	B5						
2.00	B6						
3.00	B7	Seepage at 2.85m	10.14	2.40		Brown very gravelly very silty fine to coarse SAND with low cobble content. Gravel is subrounded fine to coarse. Cobbles are subrounded.	▼
			9.24	3.30		End of trial pit at 3.30m	

Water Strikes		Depth: 3.30 Width: 1.00 Length: 4.00	Remarks:
Struck at (m)	Remarks		
2.85	Seepage at 2.85m		
Stability:	Termination Reason	Last Updated	
Stable	Terminated at refusal on boulder / possible bedrock.	03/07/2023	



Project No. 23-0661	Project Name: Mourne View, Skerries	Trial Pit ID TP06
Coordinates 724206.78 E 760613.92 N	Client: Fingal County Council	
Method: Trial Pitting	Client's Representative: McMahon Associates	Sheet 1 of 1 Scale: 1:25
Plant: 13t Tracked Excavator	Elevation 12.33 mOD	Date: 31/05/2023
		Logger: RS
		FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1		11.78	0.55		MADE GROUND: Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse.	
1.00 1.00	B3 ES2		11.23	1.10		Brown very sandy very clayey subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular.	
1.90 2.00	B4 B5					Brown very sandy very silty subangular fine to coarse GRAVEL. Sand is fine to coarse.	
3.00	B6						
		Seepage at 3.6m.					▼
			8.48	3.85		End of trial pit at 3.85m	

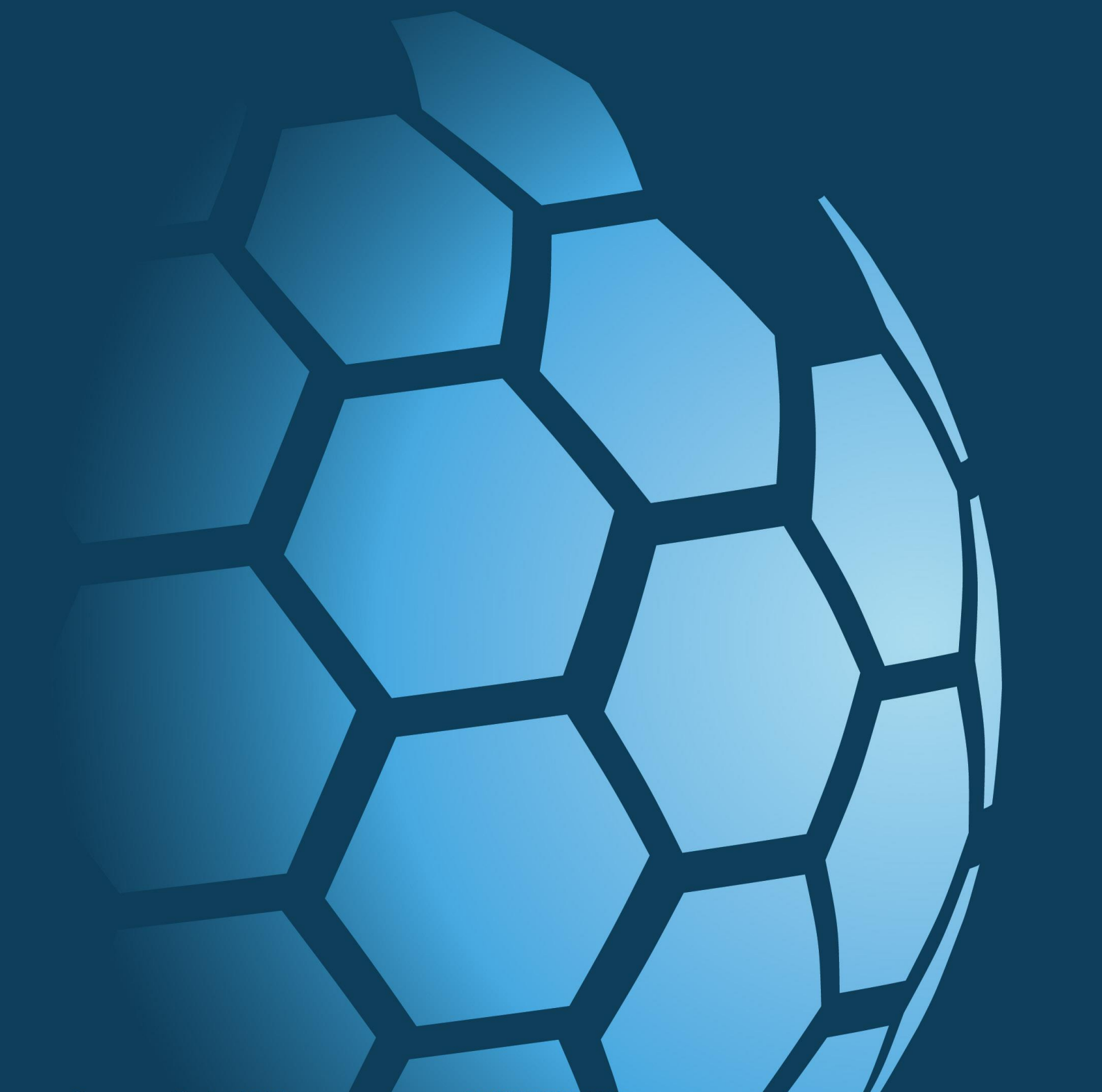
Water Strikes		Depth: 3.85 Width: 1.00 Length: 3.50	Remarks:
Struck at (m)	Remarks		
3.60	Seepage at 3.6m.		
Stability: Stable	Termination Reason Terminated at refusal on boulder / possible bedrock.	Last Updated 03/07/2023	



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APPENDIX D

TRIAL PIT PHOTOGRAPHS





TP01



TP01



TP01



TP01



TP01



TP01



TP02



TP02



TP02



TP02



TP03



TP03



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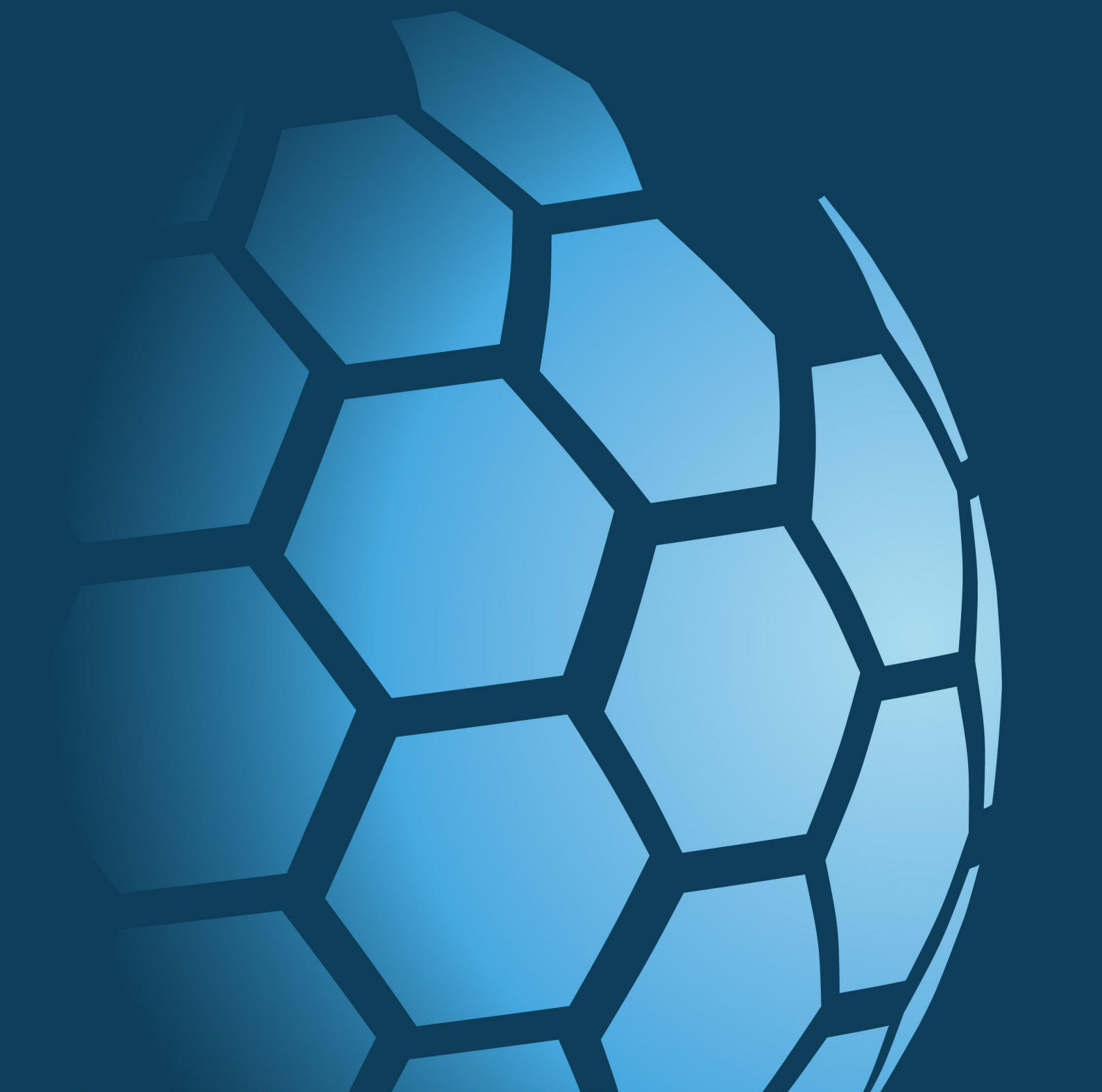


ST02



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APPENDIX E
SOAKAWAY TEST RESULTS





Project No. 23-0661	Project Name: Mourne View, Skerries	Trial Pit ID ST01
Coordinates 724359.32 E 760642.69 N	Client: Fingal County Council	
Method: Soakaway Pit	Client's Representative: McMahon Associates	Sheet 1 of 1 Scale: 1:25
Plant: 13t Tracked Excavator	Elevation 10.88 mOD	Date: 31/05/2023
		Logger: RS
		FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50 0.50	B1 ES1		10.43	0.45		MADE GROUND: brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse.	
1.00 1.00	B2 ES2		9.98	0.90		MADE GROUND: brown sandy very clayey subangular fine to coarse GRAVEL with high cobble content and rare tarmac fragments. Sand is fine to coarse. Cobbles are subangular.	0.5
			8.78 8.68	2.10 2.20		Orangish brown very sandy silty subangular fine to medium GRAVEL. Sand is fine to coarse.	1.0
						Brownish grey slightly sandy clayey subangular GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are of mixed lithologies predominantly limestone. (Possible bedrock) End of trial pit at 2.20m	1.5 2.0 2.5 3.0 3.5 4.0 4.5

Water Strikes		Depth: 2.20 Width: 0.70 Length: 2.40	Remarks: No groundwater encountered. Soakaway test undertaken.
Struck at (m)	Remarks		
		Stability: Moderately stable	Termination Reason Terminated at refusal on boulder / possible bedrock.
		Last Updated 03/07/2023	

Soakaway Infiltration Test

Project No.: 23-0661
Site: Mourne View, Skerries
Test Location: ST01
Test Date: 31 May 2023



Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual

	width (m)	length (m)
test pit top dimensions	0.70	2.40
test pit base dimensions	0.70	1.50
test pit depth (m)	2.20	

depth to groundwater before adding water (m) = Dry

time (mins)	depth to water surface (m)	depth of water in pit (m)
0	0.50	1.70
0.5	0.54	1.66
1	0.54	1.66
2	0.58	1.62
4	0.59	1.61
6	0.63	1.57
8	0.65	1.55
10	0.67	1.53
15	0.71	1.49
20	0.73	1.47
25	0.76	1.44
30	0.77	1.43
45	0.83	1.37
60	0.88	1.32
75	0.92	1.28
90	0.95	1.25
120	1.01	1.19
150	1.09	1.11
220	1.21	0.99
320	1.32	0.88
440	1.45	0.75

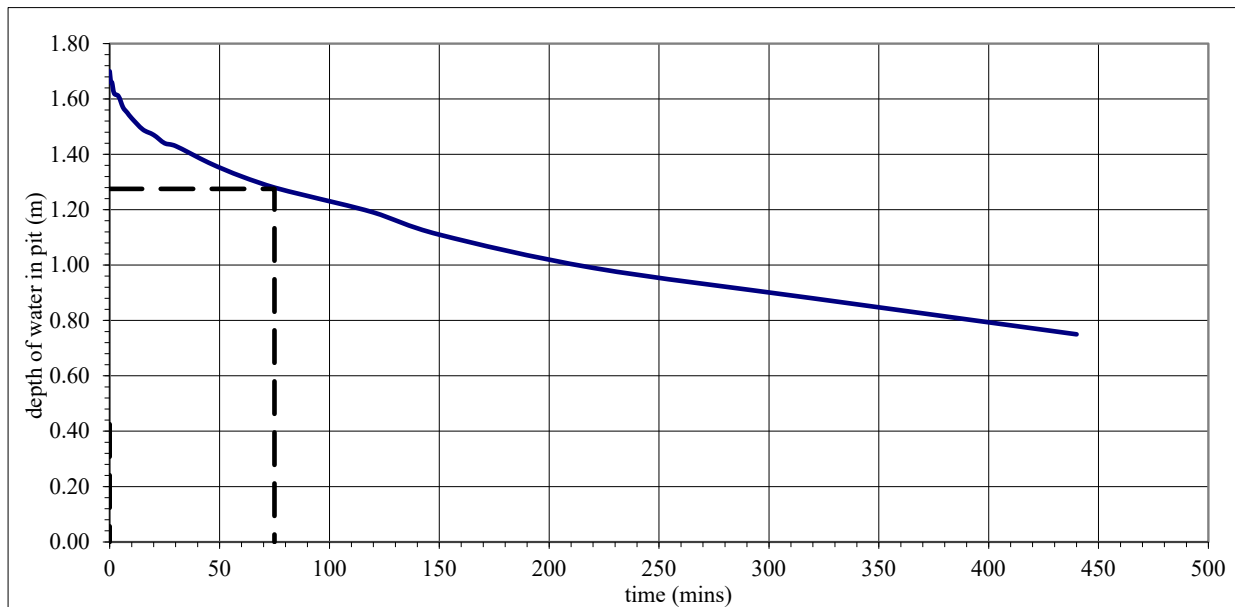
From graph below:

test start - 75% depth at
 1.275 m water depth
 time is 75.0 minutes

test end - 25% depth at
 0.425 m water depth
 time is not determined

infiltration rate (q) is very low

time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m ³)	Area of walls and base at 50% drop (m ²)	q (m/min)	q (m/h)
75	0.93	1.275					
	1.78	0.425					





Project No. 23-0661	Project Name: Mourne View, Skerries	Trial Pit ID ST02
Coordinates 724247.00 E 760614.83 N	Client: Fingal County Council	
Method: Soakaway Pit	Client's Representative: McMahon Associates	Sheet 1 of 1 Scale: 1:25
Plant: 13t Tracked Excavator	Elevation 11.83 mOD	Date: 31/05/2023
		Logger: RS
		FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1		11.33	0.50		MADE GROUND: Stiff dark brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse.	
1.00	B3		10.98	0.85		Brown sandy subrounded fine to coarse GRAVEL with low cobble content. Sand is fine to coarse.	0.5
1.00	ES2					Greyish brown gravelly very clayey fine to coarse SAND. Gravel is subangular fine to medium.	1.0
2.00	B4						1.5
			9.33	2.50		End of trial pit at 2.50m	2.0
							2.5
							3.0
							3.5
							4.0
							4.5

Water Strikes		Depth: 2.50 Width: 0.70 Length: 2.50	Remarks: No groundwater encounter. Soakaway test undertaken.
Struck at (m)	Remarks		
		Stability: Stable	Termination Reason Terminated at scheduled depth.
		Last Updated 03/07/2023	

Soakaway Infiltration Test

Project No.: 23-0661
Site: Mourne View, Skerries
Test Location: ST02
Test Date: 31 May 2023



Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual

	width (m)	length (m)
test pit top dimensions	0.70	2.70
test pit base dimensions	0.70	0.90
test pit depth (m)	2.50	

depth to groundwater before adding water (m) = Dry

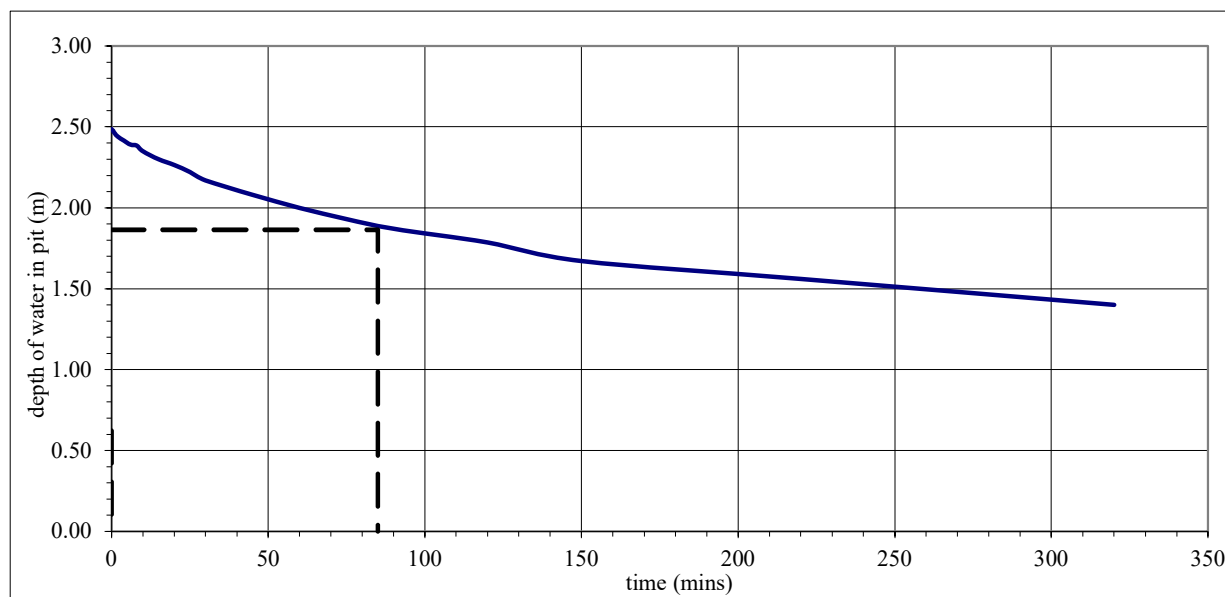
time (mins)	depth to water surface (m)	depth of water in pit (m)
0	0.02	2.49
0.5	0.03	2.48
1	0.04	2.46
2	0.06	2.44
4	0.09	2.42
6	0.11	2.39
8	0.12	2.39
10	0.15	2.35
15	0.20	2.30
20	0.24	2.27
25	0.28	2.22
30	0.33	2.17
45	0.42	2.08
60	0.50	2.00
75	0.57	1.93
90	0.63	1.87
120	0.72	1.79
150	0.83	1.67
220	0.94	1.56
320	1.10	1.40

From graph below:
 test start - 75% depth at
 1.86375 m water depth
 time is 85.0 minutes

 test end - 25% depth at
 0.62125 m water depth
 time is not determined

infiltration rate (q) is very low

time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m ³)	Area of walls and base at 50% drop (m ²)	q (m/min)	q (m/h)
85	0.64	1.86375					
	1.88	0.62125					

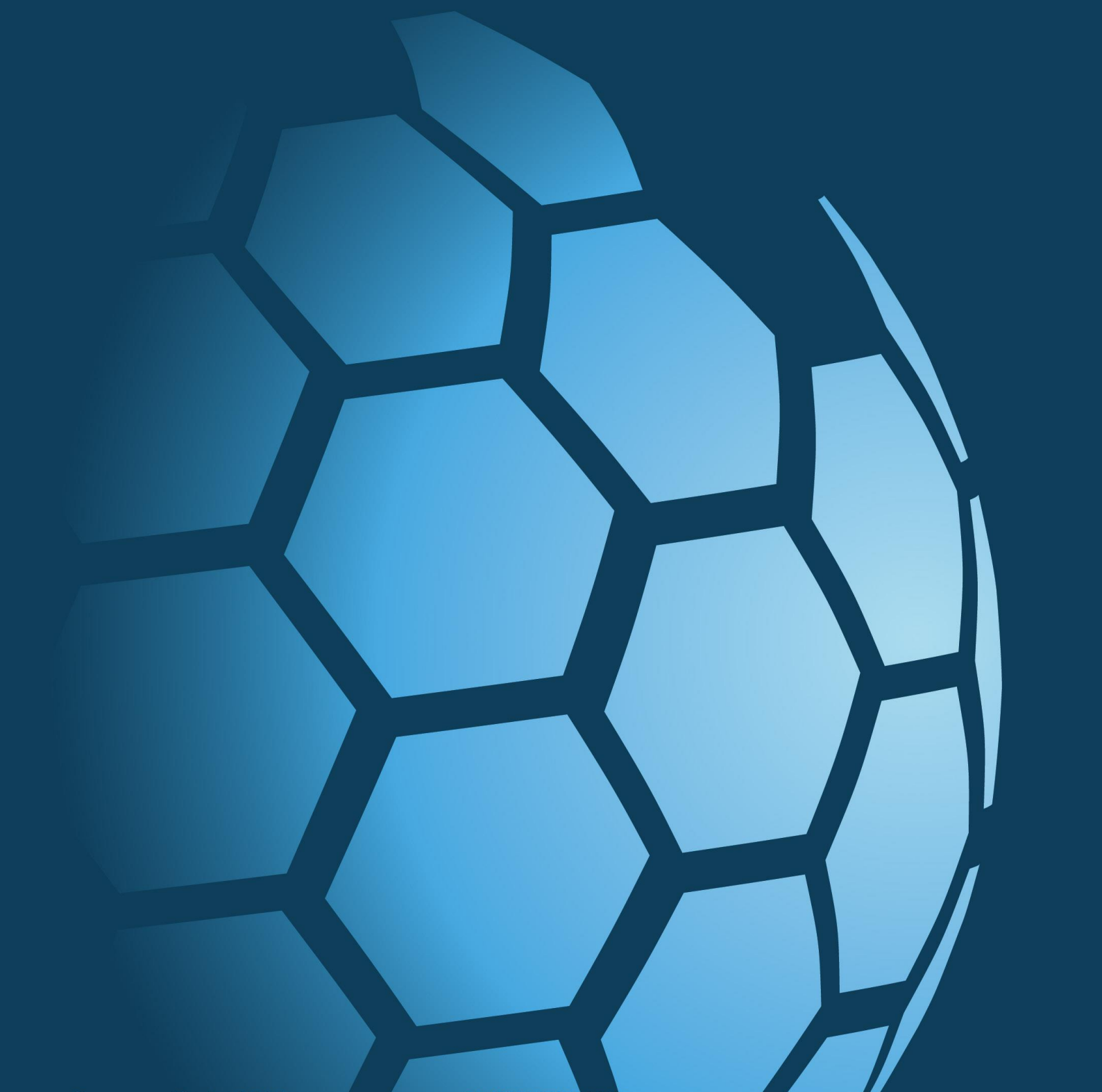




CAUSEWAY
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APPENDIX F

PLATE LOAD TEST RESULTS



BHP MTI F1309 V 1.0 04/07/2022

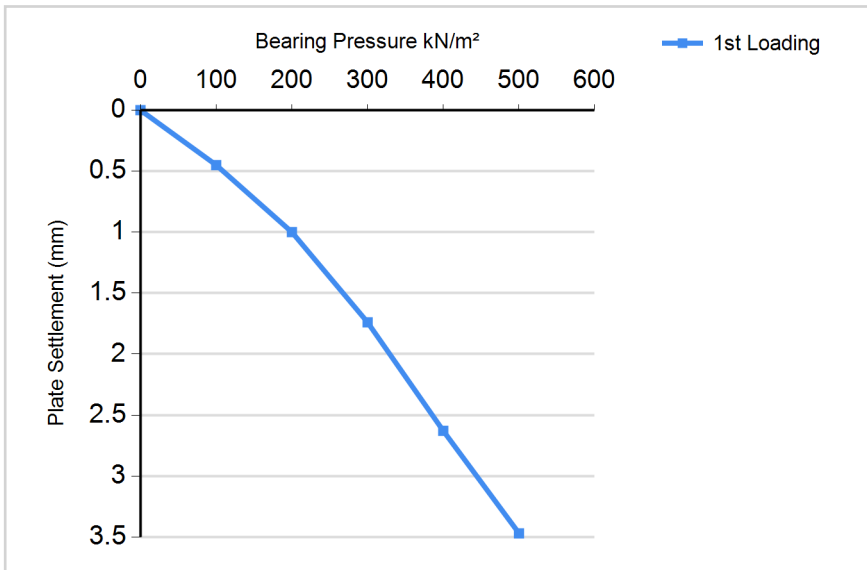
Client: Causeway Geotech
Unit 3 Balbriggan Business Park

Balbriggan
FAO: Sean Ross

BHP Ref No: 23/06/0846
Order No: 2305-233
Date Tested: 02/06/2023
Test Specification: Client Spec
Item: Formation

Project: 127 Mourne View
Location Reference: TP01 1.50m
Type of Reaction Load: Track Machine
Plate Diameter: 450
BS 1377:Part 9:1990, CL4.1 (Plate Loading Test)


Bearing Pressure (kN/m ²)	Plate Settlement (mm)
0	0.00
100	0.45
200	1.00
300	1.74
400	2.63
500	3.47



Maximum Applied Pressure (kN/m²)	500
Maximum Deformation (mm)	3.47
Estimated CBR % @ 1.25mm deformation	37
K = (KN/m²/m) @ 1.25mm deformation	116064
K = (MN/m²/m) @ 1.25mm deformation	116

Remarks:
CBR calculated in accordance with Part 2 DMRB Vule 7 : Part 2 HD 25/94
Time recorded at each interval was 3 minutes.

Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation. Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.' & information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

Approved By:	Signature:
Enda Quinlan -	

For and On Behalf of BHP Laboratories

Issue Date: 02/06/2023

Tested by BHP Laboratories, New Road, Thomondgate, Limerick Phone:(061) 455399 Email: jamespurcell@bhp.ie

This test report will not be duplicated expect in full without the permission of the laboratory. Information identifying the 'Client', 'FAO', 'Project', 'Location Reference', 'Item', 'Test Specification' and 'Order No' has been provided by the customer. Results apply only to the sample tested and where the laboratory is not responsible for sampling, result apply to the sample as received. Sampling is outside the scope of accreditation

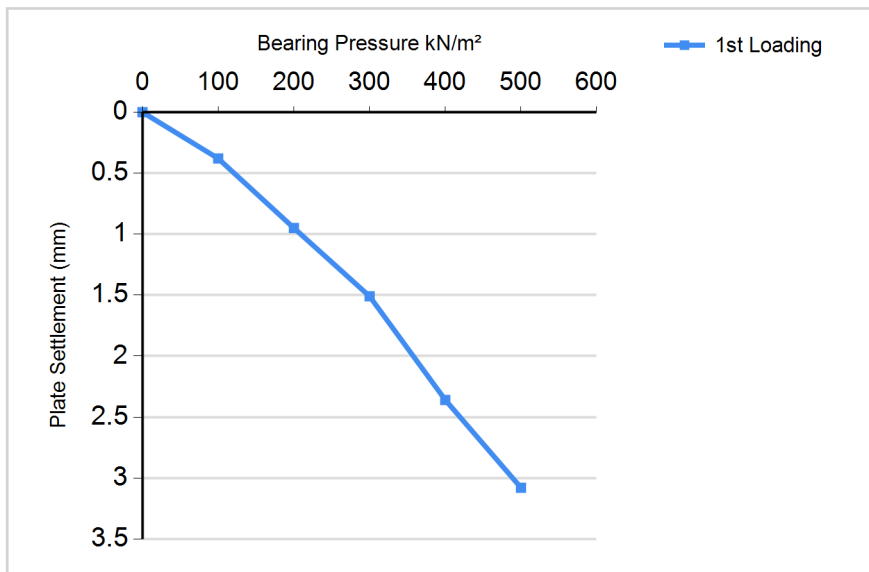
BHP MTI F1309 V 1.0 04/07/2022

Client: Causeway Geotech
 Unit 3 Balbriggan Business Park
 Balbriggan
FAO: Sean Ross

BHP Ref No: 23/06/0847
Order No: 2305-233
Date Tested: 02/06/2023
Test Specification: Client Spec
Item: Formation


Project: 127 Mourne View
Location Reference: TP03 1.50m
Type of Reaction Load: Track Machine
Plate Diameter: 450
BS 1377:Part 9:1990, CL4.1 (Plate Loading Test)

Bearing Pressure (kN/m ²)	Plate Settlement (mm)
0	0.00
100	0.38
200	0.95
300	1.51
400	2.36
500	3.08



Maximum Applied Pressure (kN/m²)	500
Maximum Deformation (mm)	3.08
Estimated CBR % @ 1.25mm deformation	42
K = (KN/m²/m) @ 1.25mm deformation	125984
K = (MN/m²/m) @ 1.25mm deformation	125

Remarks:
 CBR calculated in accordance with Part 2 DMRB Vule 7 : Part 2 HD 25/94
 Time recorded at each interval was 3 minutes.
 Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation. Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.' & information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

Approved By: Enda Quinlan -	Signature: 
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For and On Behalf of BHP Laboratories Issue Date: 02/06/2023
 Tested by BHP Laboratories, New Road, Thomondgate, Limerick Phone:(061) 455399 Email: jamespurcell@bhp.ie

This test report will not be duplicated expect in full without the permission of the laboratory. Information identifying the 'Client', 'FAO', 'Project', 'Location Reference', 'Item', 'Test Specification' and 'Order No' has been provided by the customer. Results apply only to the sample tested and where the laboratory is not responsible for sampling, result apply to the sample as received. Sampling is outside the scope of accreditation

BHP MTI F1309 V 1.0 04/07/2022

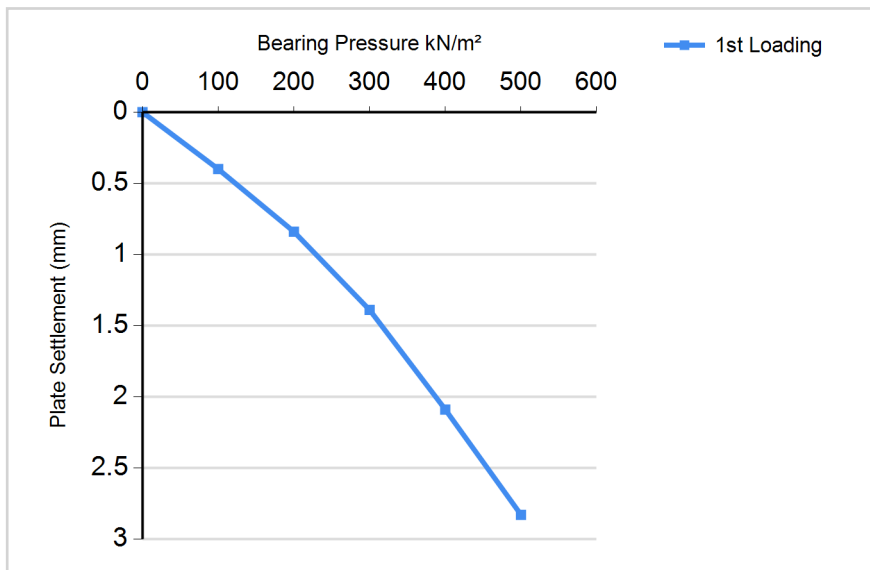
Client: Causeway Geotech
Unit 3 Balbriggan Business Park

Balbriggan
FAO: Sean Ross

BHP Ref No: 23/06/0848
Order No: 2305-233
Date Tested: 02/06/2023
Test Specification: Client Spec
Item: Formation

Project: 127 Mourne View
Location Reference: TP04 1.20m
Type of Reaction Load: Track Machine
Plate Diameter: 450
BS 1377:Part 9:1990, CL4.1 (Plate Loading Test)


Bearing Pressure (kN/m ²)	Plate Settlement (mm)
0	0.00
100	0.40
200	0.84
300	1.39
400	2.09
500	2.83



Maximum Applied Pressure (kN/m²)	500
Maximum Deformation (mm)	2.83
Estimated CBR % @ 1.25mm deformation	48
K = (KN/m²/m) @ 1.25mm deformation	136400
K = (MN/m²/m) @ 1.25mm deformation	136

Remarks:
CBR calculated in accordance with Part 2 DMRB Vule 7 : Part 2 HD 25/94
Time recorded at each interval was 3 minutes.

Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation. Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.' & information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

Approved By:	Signature:
Enda Quinlan -	

For and On Behalf of BHP Laboratories

Issue Date: 02/06/2023

Tested by BHP Laboratories, New Road, Thomondgate, Limerick Phone:(061) 455399 Email: jamespurcell@bhp.ie

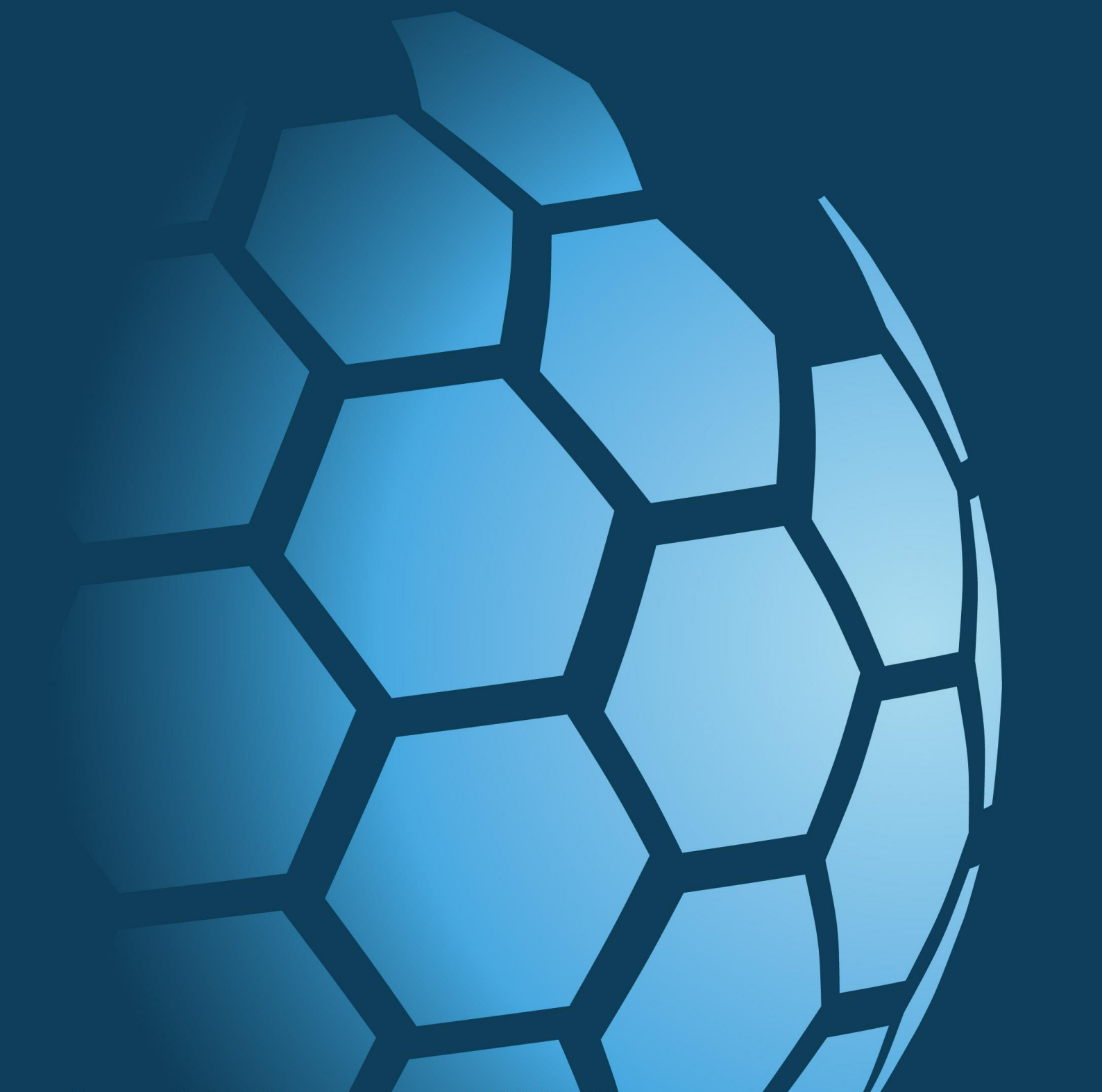
This test report will not be duplicated expect in full without the permission of the laboratory. Information identifying the 'Client', 'FAO', 'Project', 'Location Reference', 'Item', 'Test Specification' and 'Order No' has been provided by the customer. Results apply only to the sample tested and where the laboratory is not responsible for sampling, result apply to the sample as received. Sampling is outside the scope of accreditation



CAUSEWAY
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GEOTECH

APPENDIX G

GEOTECHNICAL LABORATORY TEST RESULTS



**SOIL AND ROCK SAMPLE ANALYSIS
LABORATORY TEST REPORT**

30 June 2023

Project Name:	Mourne View, Skerries Co. Dublin
Project No.:	23-0661
Client:	Fingal County Council
Engineer:	McMahon Associates

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 02/06/2023 and 30/06/2023.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.



Stephen Watson

Laboratory Manager

Signed for and on behalf of Causeway Geotech Ltd



Project Name: Mourne View, Skerries Co. Dublin

Report Reference: Schedule 1

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received.

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
SOIL	Moisture Content of Soil	BS 1377-2: 1990: Cl 3.2	5
SOIL	Liquid and Plastic Limits of soil-1 point cone penetrometer method	BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4	5
SOIL	Bulk and dry density by Linear Measurement Method	BS 1377-2: 1990: Cl 7.2	5
SOIL	Particle size distribution - wet sieving	BS 1377-2: 1990: Cl 9.2	12
SOIL	Particle size distribution - sedimentation hydrometer method	BS 1377-2: 1990: Cl 9.5	2
SOIL	Moisture Condition Value at natural moisture content	BS 1377-4: 1990: Cl 5.4	5
SOIL	California Bearing Ratio (CBR)	BS 1377-4: 1990: Cl 7	5

SUB-CONTRACTED TESTS

In agreement with Client, the following tests were conducted by an approved sub-contractor. All sub-contracting laboratories used are UKAS accredited.


Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
SOIL – Subcontracted to Derwentside Environmental Testing Ltd (<i>UKAS 2139</i>)	pH Value of Soil		5
SOIL – Subcontracted to Derwentside Environmental Testing Ltd (<i>UKAS 2139</i>)	Sulphate Content water extract		5
SOIL – Subcontracted to Derwentside Environmental Testing Ltd (<i>UKAS 2139</i>)	Total Sulphate		5

Summary of Classification Test Results

Project No. 23-0661	Project Name Mourne View, Skerries Co. Dublin
------------------------	--

Hole No.	Sample				Specimen Description	Density		w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Casagrande Classification
	Ref	Top	Base	Type		bulk Mg/m3	dry							
BH01	5	1.00	2.00	B	Brown slightly gravelly clayey fine to coarse SAND.	2.18	2.00	10	30	41 -1pt	21	20		CI
BH02	6	1.20	1.90	B	Brown sandy gravelly clayey SILT.	2.18	1.98	11	51	22 -1pt	18	4		ML
BH03	6	1.30	2.40	B	Brown sandy slightly gravelly silty CLAY.	2.21	1.95	12	64	26 -1pt	16	10		CL
BH04	6	1.50	2.90	B	Brown sandy slightly gravelly silty CLAY.	2.22	1.98	12	59	23 -1pt	16	7		CL
BH05	6	1.70	2.60	B	Brown sandy slightly gravelly silty CLAY.	2.15	1.96	12	49	23 -1pt	15	8		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise
LAB 01R Version 6

Key Density test Liquid Limit Particle density Linear measurement unless : 4pt cone unless : sp - small pycnometer wd - water displacement cas - Casagrande method gj - gas jar wi - immersion in water 1pt - single point test	Date Printed <p style="text-align: center;">30/06/2023</p>	Approved By <p style="text-align: center;">Stephen Watson</p>	 10122
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PARTICLE SIZE DISTRIBUTION

Job Ref **23-0661**

Borehole/Pit No. **BH01**

Site Name **Mourne View, Skerries Co. Dublin**

Sample No. **5**

Specimen Description **Brown slightly gravelly clayey fine to coarse SAND.**

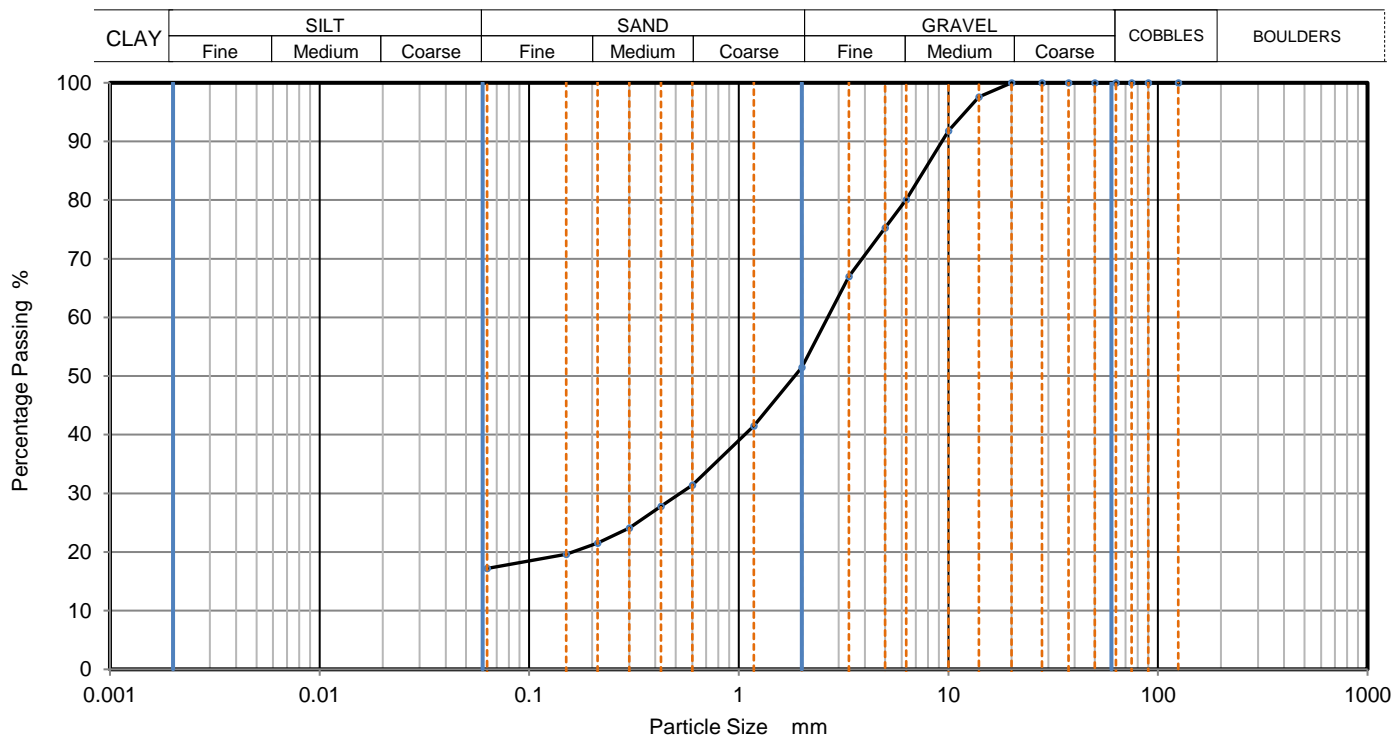
Sample Depth (m)	Top	1.00
	Base	2.00

Specimen Reference	8	Specimen Depth	1	m
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Sample Type **B**

Test Method **BS1377:Part 2:1990, clause 9.2**

KeyLAB ID **Caus2023060214**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	92		
6.3	80		
5	75		
3.35	67		
2	52		
1.18	42		
0.6	31		
0.425	28		
0.3	24		
0.212	22		
0.15	20		
0.063	17		

Dry Mass of sample, g **502**

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	48.5
Sand	34.2
Fines <0.063mm	17.0

Grading Analysis		
D100	mm	
D60	mm	2.66
D30	mm	0.525
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

Approved

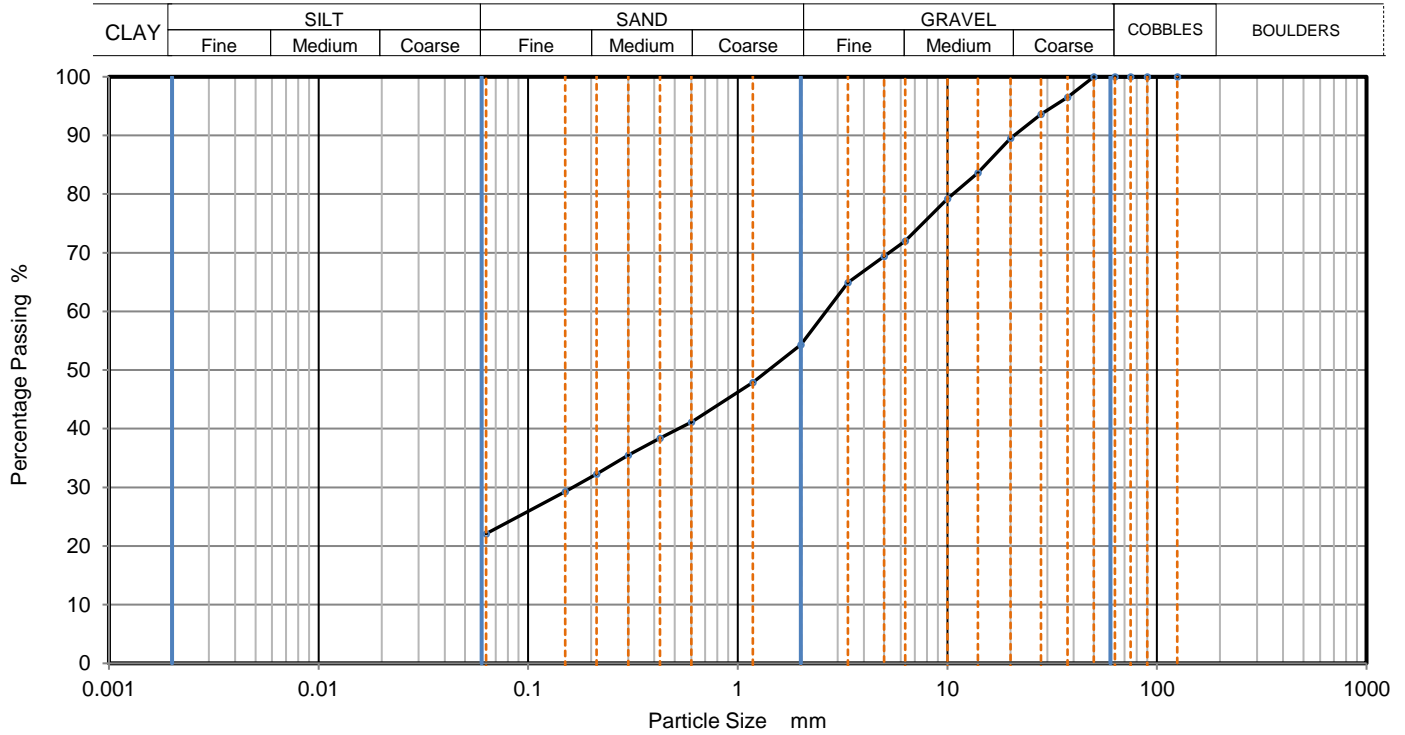
Stephen Watson





PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	BH02
Sample No.	6
Sample Depth (m)	Top 1.20
	Base 1.90
Specimen Reference	8
Specimen Depth	1.2 m
Sample Type	B
KeyLAB ID	Caus2023060216



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	94		
20	90		
14	84		
10	79		
6.3	72		
5	69		
3.35	65		
2	54		
1.18	48		
0.6	41		
0.425	38		
0.3	36		
0.212	32		
0.15	29		
0.063	22		

Dry Mass of sample, g 3231

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	45.7
Sand	32.2
Fines <0.063mm	22.0

Grading Analysis	
D100	mm
D60	mm 2.64
D30	mm 0.162
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

Approved
Stephen Watson

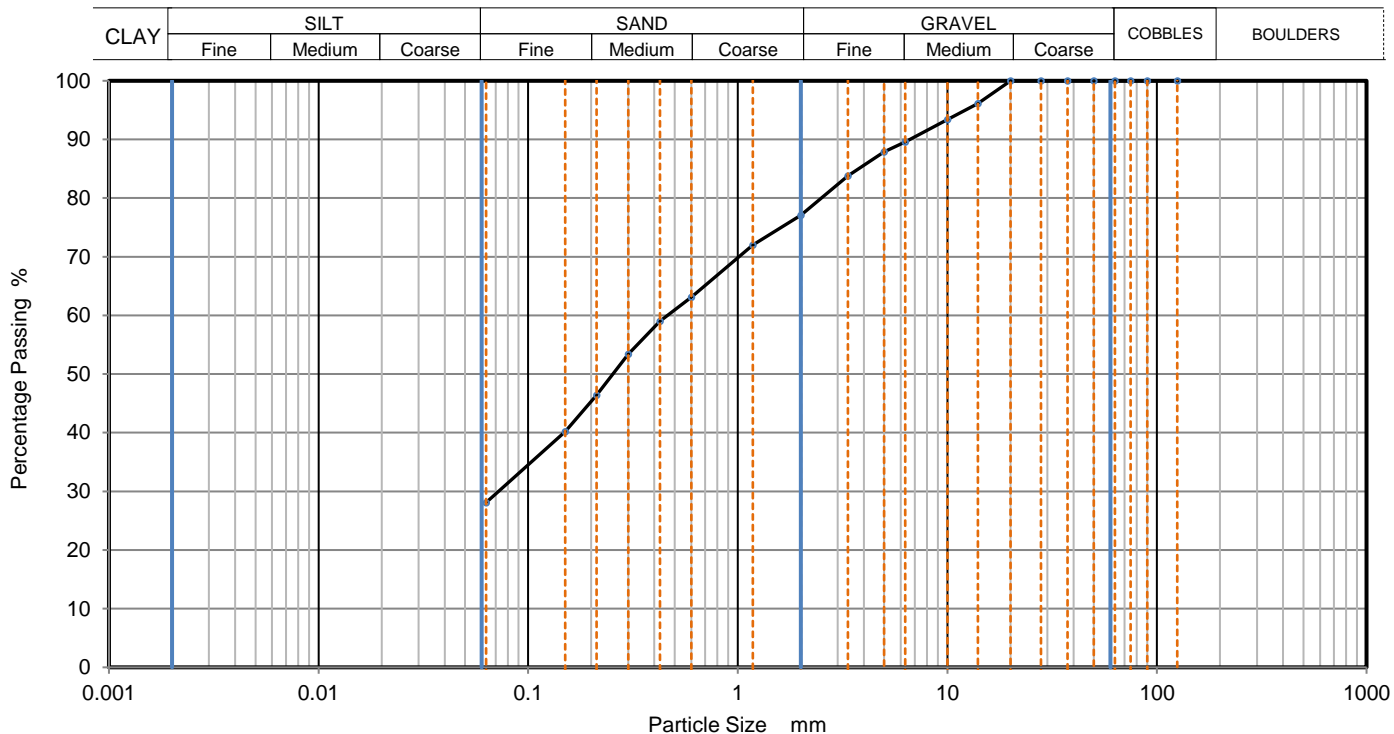




PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	BH03
Sample No.	6
Sample Depth (m)	Top 1.30
	Base 2.40
Sample Type	B
KeyLAB ID	Caus2023060218

Site Name	Mourne View, Skerries Co. Dublin		
Specimen Description	Brown sandy slightly gravelly silty CLAY.		
Specimen Reference	8	Specimen Depth	1.3 m
Test Method	BS1377:Part 2:1990, clause 9.2		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	93		
6.3	90		
5	88		
3.35	84		
2	77		
1.18	72		
0.6	63		
0.425	59		
0.3	53		
0.212	46		
0.15	40		
0.063	28		

Dry Mass of sample, g 516

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	22.9
Sand	49.0
Fines <0.063mm	28.0

Grading Analysis	
D100	mm
D60	mm 0.461
D30	mm 0.0722
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

Approved
Stephen Watson

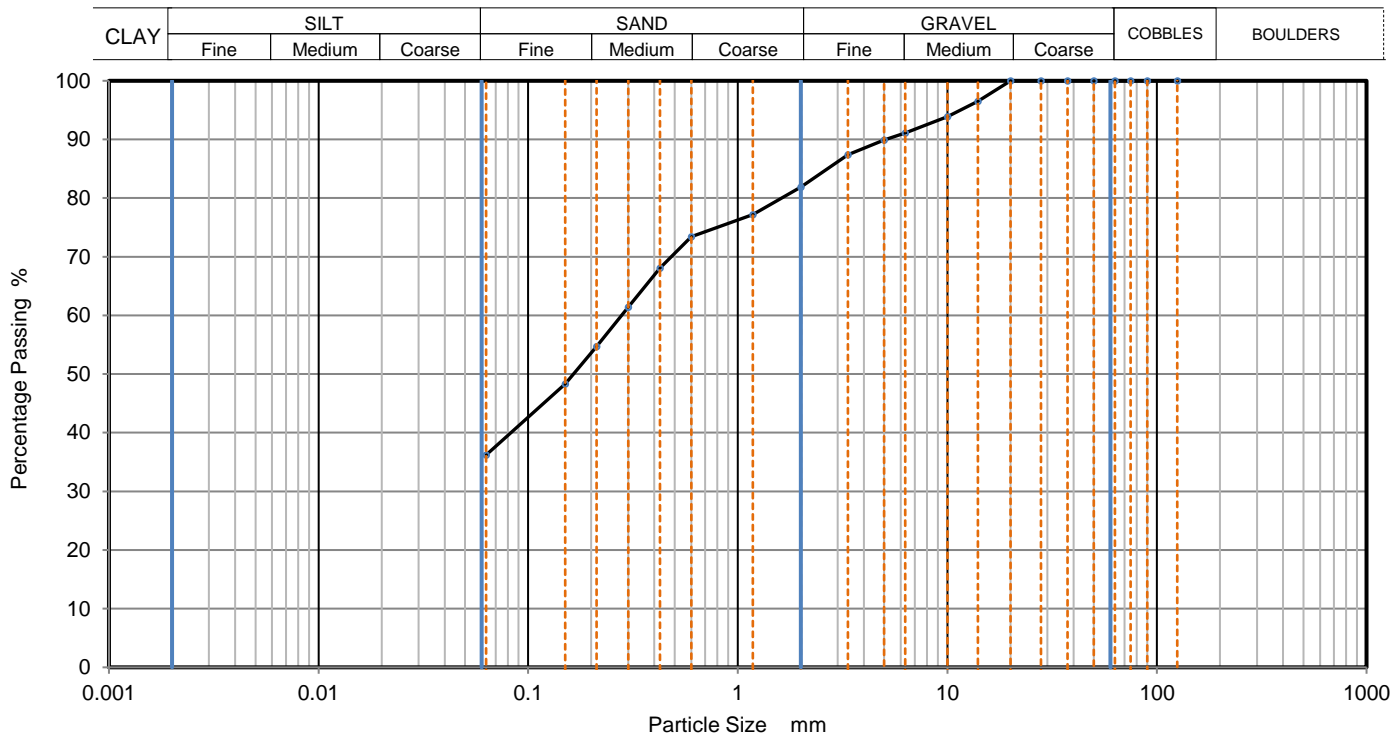




PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661	
Borehole/Pit No.	BH04	
Sample No.	6	
Sample Depth (m)	Top	1.50
	Base	2.90
Sample Type	B	
KeyLAB ID	Caus2023060220	

Site Name	Mourne View, Skerries Co. Dublin		
Specimen Description	Brown sandy slightly gravelly silty CLAY.		
Specimen Reference	8	Specimen Depth	1.5 m
Test Method	BS1377:Part 2:1990, clause 9.2		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	91		
5	90		
3.35	87		
2	82		
1.18	77		
0.6	73		
0.425	68		
0.3	61		
0.212	55		
0.15	48		
0.063	36		

Dry Mass of sample, g 505

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	18.1
Sand	45.7
Fines <0.063mm	36.0

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

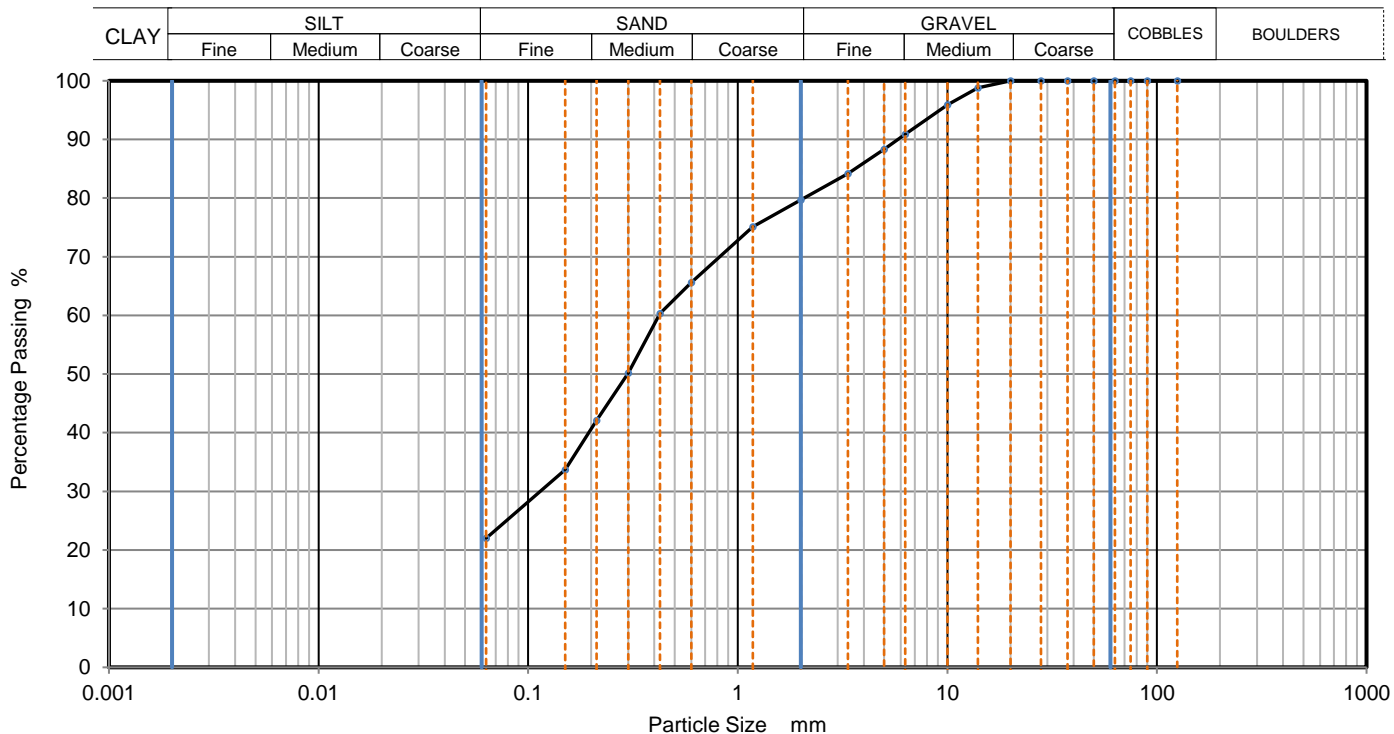
Approved
Stephen Watson





PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	BH05
Sample No.	6
Sample Depth (m)	Top 1.70
	Base 2.60
Sample Type	B
KeyLAB ID	Caus2023060222



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	96		
6.3	91		
5	88		
3.35	84		
2	80		
1.18	75		
0.6	66		
0.425	60		
0.3	50		
0.212	42		
0.15	34		
0.063	22		

Dry Mass of sample, g 501

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	20.3
Sand	57.7
Fines <0.063mm	22.0

Grading Analysis	
D100	mm
D60	mm 0.421
D30	mm 0.114
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

Approved
Stephen Watson





PARTICLE SIZE DISTRIBUTION

Job Ref **23-0661**

Borehole/Pit No. **ST01**

Site Name **Mourne View, Skerries Co. Dublin**

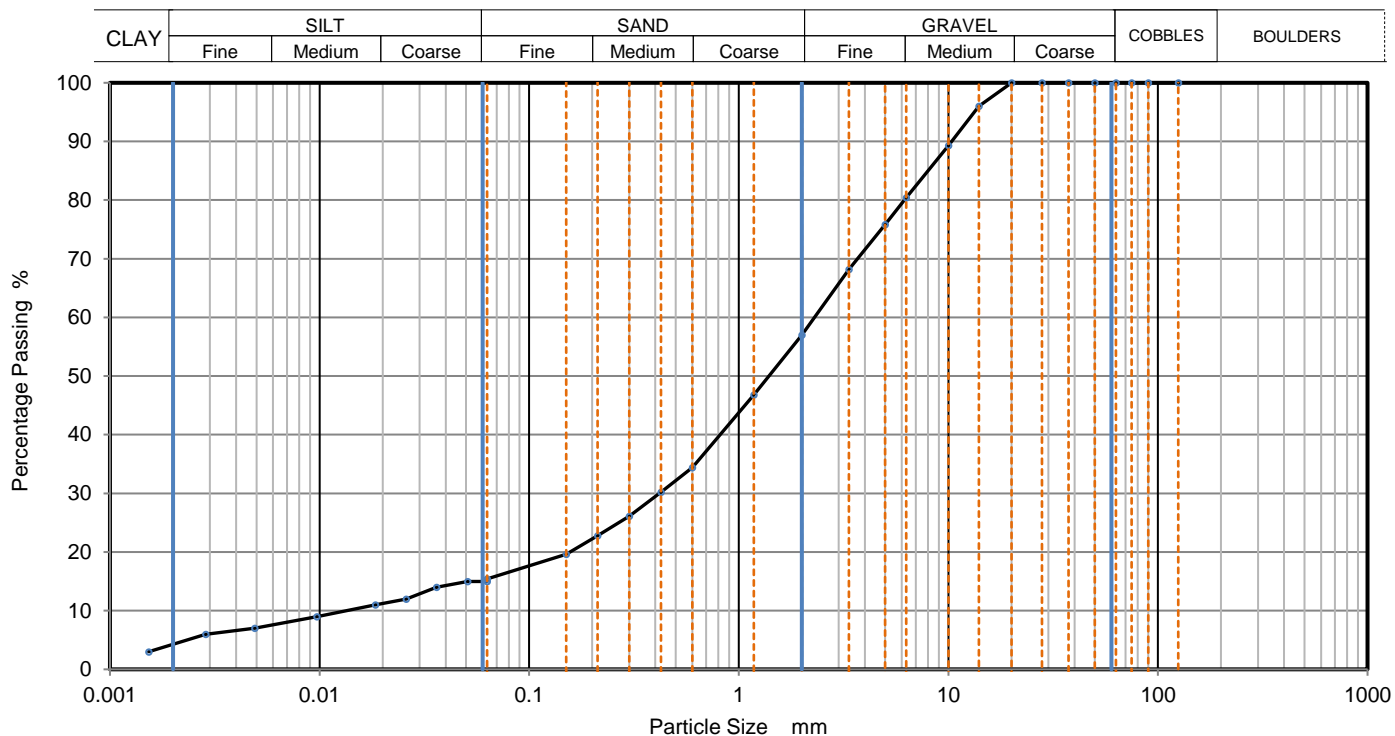
Sample No. **2**

Specimen Description **Brown slightly gravelly clayey fine to coarse SAND.**

Sample Depth (m)	Top	1.00
	Base	

Specimen Reference	1	Specimen Depth	1	m	Sample Type	B
--------------------	---	----------------	---	---	-------------	---

Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	Caus202306210
-------------	---	-----------	---------------



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06300	15
90	100	0.05090	15
75	100	0.03621	14
63	100	0.02592	12
50	100	0.01844	11
37.5	100	0.00969	9
28	100	0.00490	7
20	100	0.00286	6
14	96	0.00153	3
10	89		
6.3	80		
5	76		
3.35	68		
2	57		
1.18	47		
0.6	34		
0.425	30	Particle density (assumed) 2.65 Mg/m ³	
0.3	26		
0.212	23		
0.15	20		
0.063	15		

Dry Mass of sample, g 505

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	43.0
Sand	41.6
Silt	11.1
Clay	4.3

Grading Analysis	
D100	mm
D60	mm 2.29
D30	mm 0.417
D10	mm 0.0129
Uniformity Coefficient	180
Curvature Coefficient	5.9

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

Stephen Watson



PARTICLE SIZE DISTRIBUTION

Job Ref **23-0661**

Borehole/Pit No. **ST02**

Site Name **Mourne View, Skerries Co. Dublin**

Sample No. **4**

Specimen Description **Brown sandy slightly gravelly silty CLAY.**

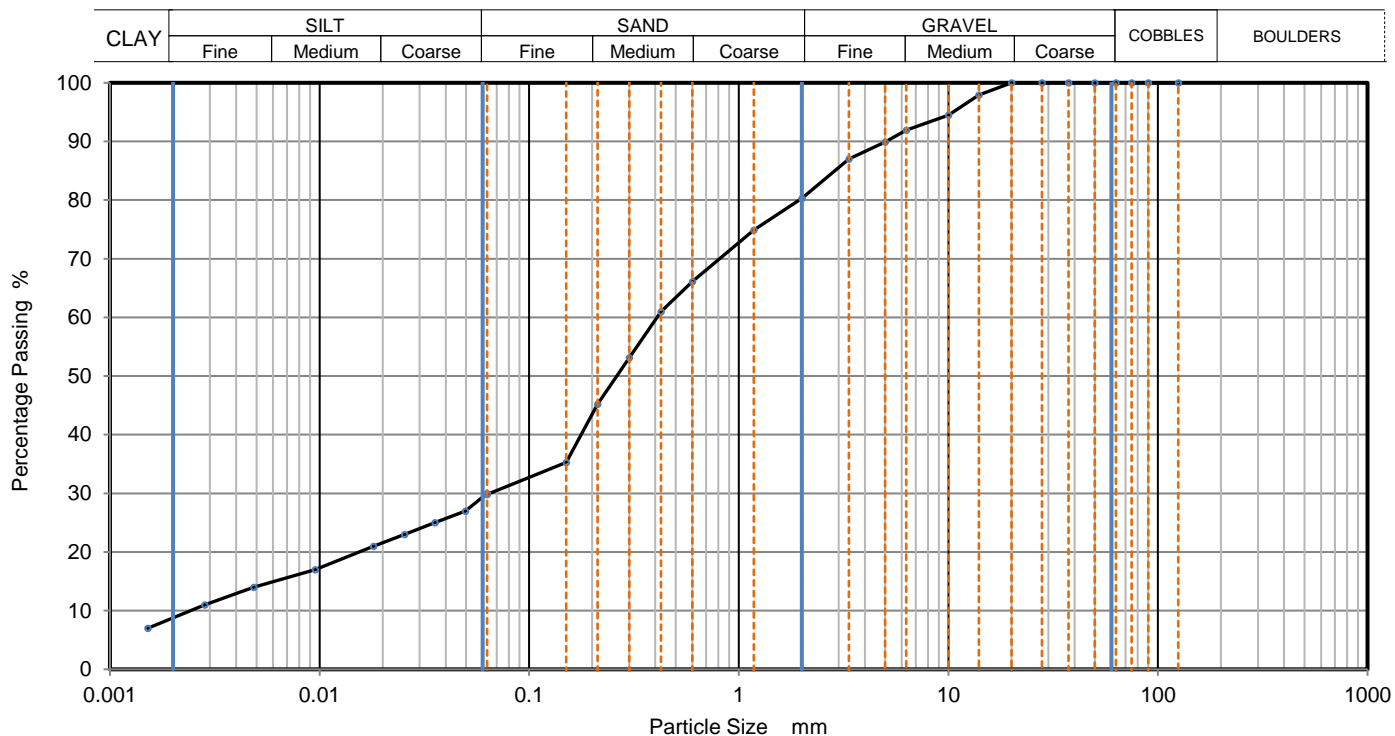
Sample Depth (m)	Top	2.00
	Base	

Specimen Reference	1	Specimen Depth	2	m
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Sample Type **B**

Test Method **BS1377:Part 2:1990, clauses 9.2 and 9.5**

KeyLAB ID **Caus202306211**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06300	30
90	100	0.04961	27
75	100	0.03554	25
63	100	0.02542	23
50	100	0.01811	21
37.5	100	0.00952	17
28	100	0.00484	14
20	100	0.00283	11
14	98	0.00151	7
10	95		
6.3	92		
5	90		
3.35	87		
2	80		
1.18	75		
0.6	66	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	53		
0.212	45		
0.15	35		
0.063	30		

Dry Mass of sample, g **501**

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	19.7
Sand	50.5
Silt	20.7
Clay	9.1

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	180
Curvature Coefficient	4.5

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

Approved
Stephen Watson

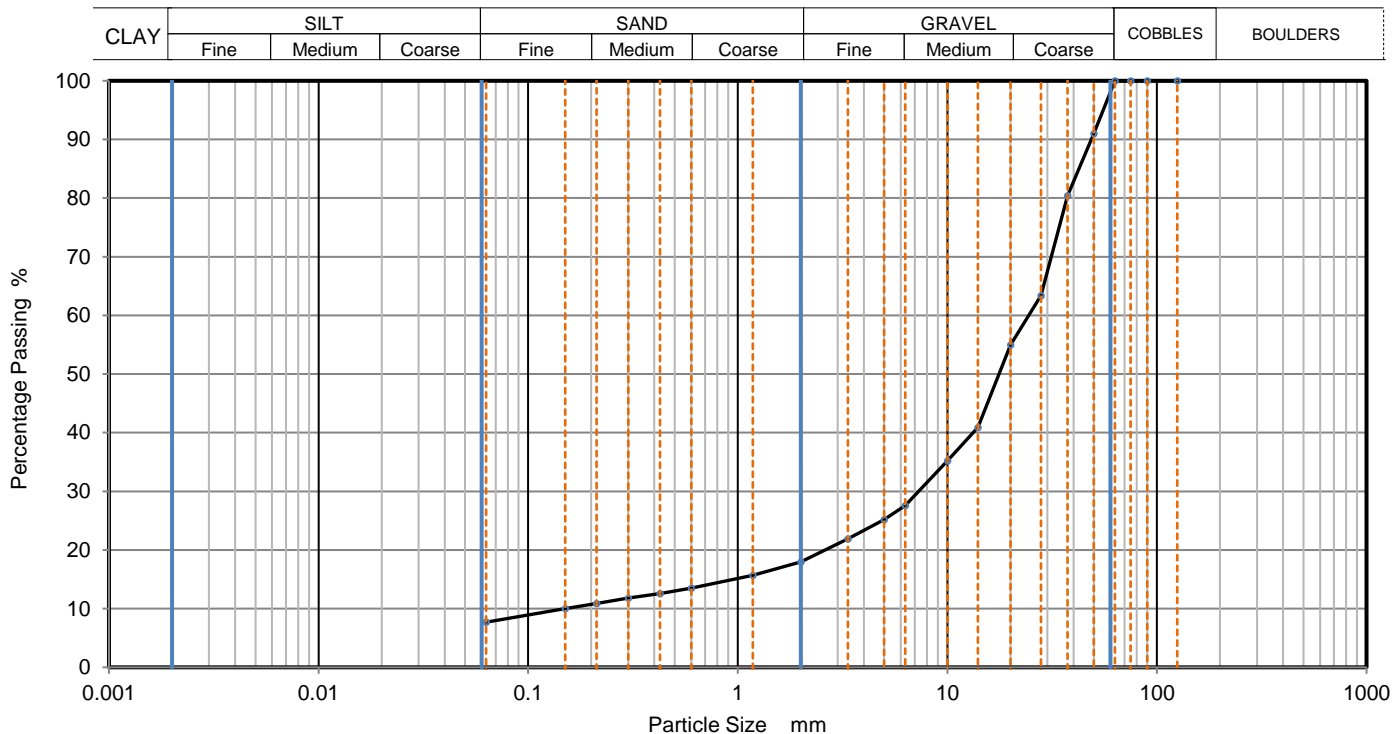




PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	TP01
Sample No.	4
Sample Depth (m)	Top 2.00
	Base
Sample Type	B
KeyLAB ID	Caus2023060223

Site Name	Mourne View, Skerries Co. Dublin		
Specimen Description	Brown slightly sandy slightly silty subangular fine to coarse GRAVEL.		
Specimen Reference	2	Specimen Depth	2 m
Test Method	BS1377:Part 2:1990, clause 9.2		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	80		
28	63		
20	55		
14	41		
10	35		
6.3	28		
5	25		
3.35	22		
2	18		
1.18	16		
0.6	14		
0.425	13		
0.3	12		
0.212	11		
0.15	10		
0.063	8		

Dry Mass of sample, g 11485

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	82.0
Sand	10.4
Fines <0.063mm	8.0

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	160
Curvature Coefficient	14

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

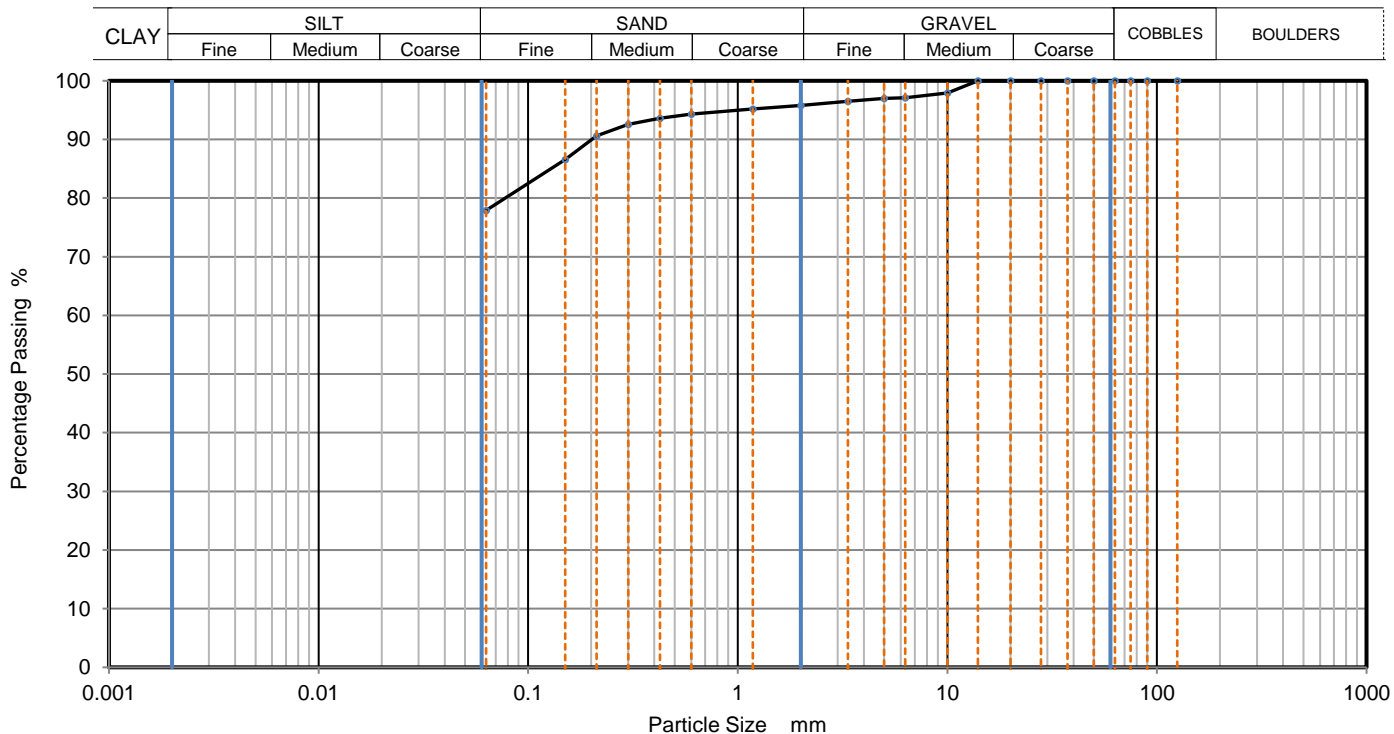
Approved
Stephen Watson





PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	TP03
Sample No.	4
Sample Depth (m)	Top 2.00
	Base
Sample Type	B
KeyLAB ID	Caus2023060228



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	97		
5	97		
3.35	97		
2	96		
1.18	95		
0.6	94		
0.425	94		
0.3	93		
0.212	91		
0.15	87		
0.063	78		

Dry Mass of sample, g 504

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	4.2
Sand	17.9
Fines <0.063mm	78.0

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

Approved

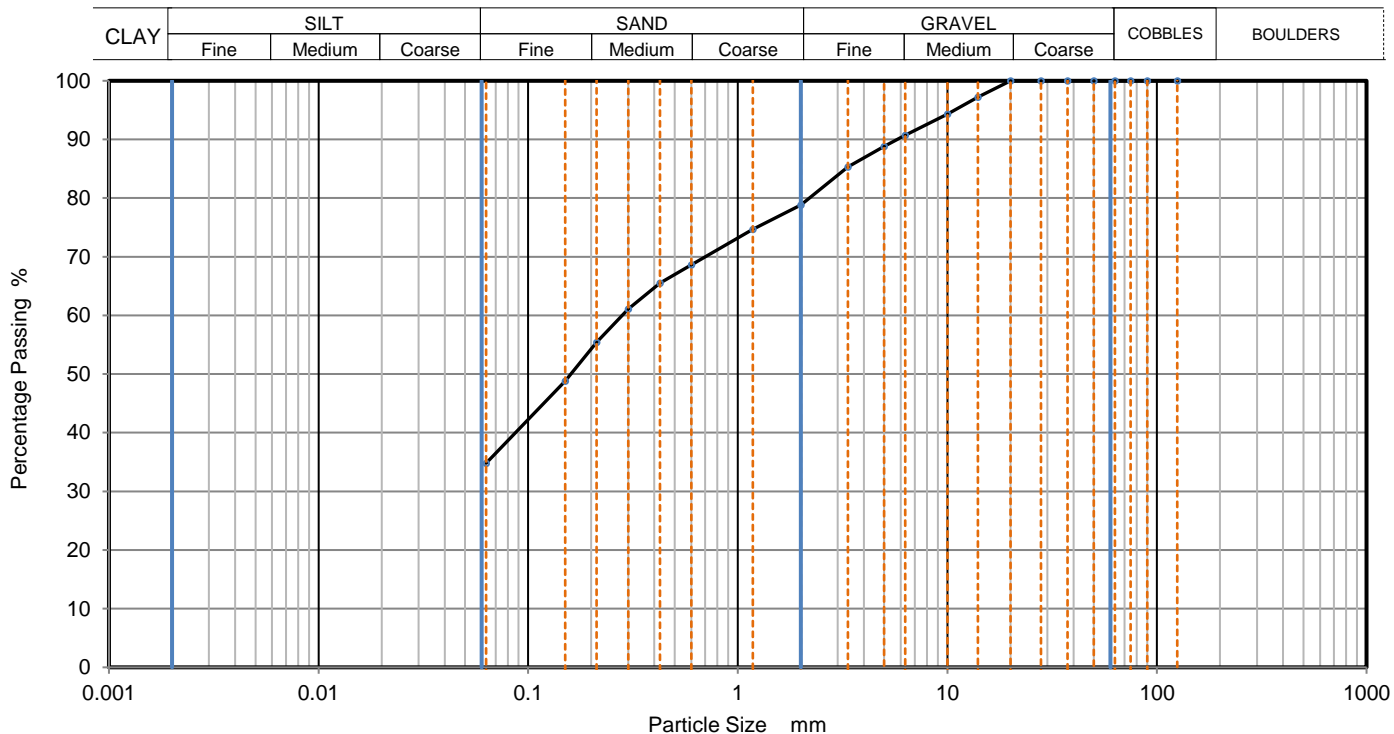
Stephen Watson





PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	TP04
Sample No.	4
Sample Depth (m)	Top 2.00
	Base
Sample Type	B
KeyLAB ID	Caus2023060230



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	91		
5	89		
3.35	85		
2	79		
1.18	75		
0.6	69		
0.425	66		
0.3	61		
0.212	55		
0.15	49		
0.063	35		

Dry Mass of sample, g 502

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	21.2
Sand	44.0
Fines <0.063mm	35.0

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

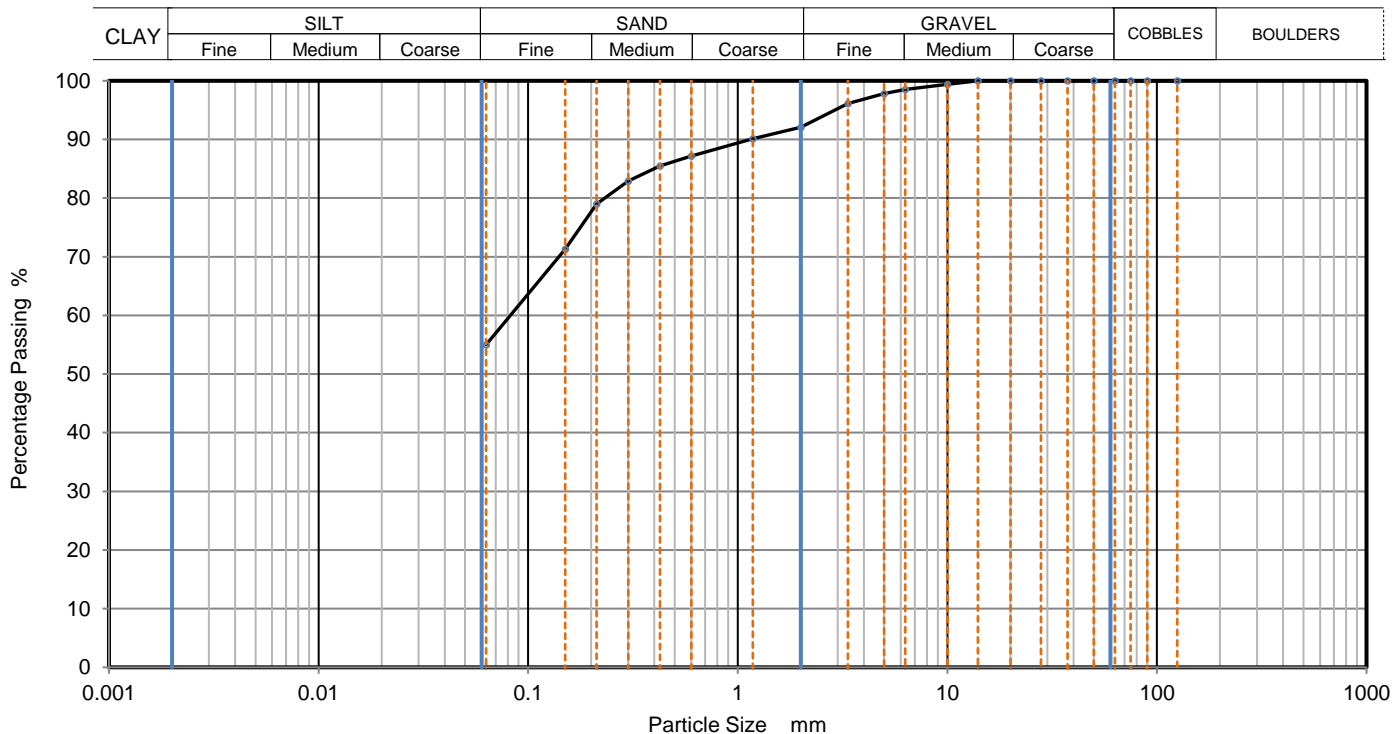
Approved
Stephen Watson





PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	TP05
Sample No.	6
Sample Depth (m)	Top 2.00
	Base
Sample Type	B
KeyLAB ID	Caus2023060234



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	98		
3.35	96		
2	92		
1.18	90		
0.6	87		
0.425	86		
0.3	83		
0.212	79		
0.15	71		
0.063	55		

Dry Mass of sample, g 527

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	7.9
Sand	37.1
Fines <0.063mm	55.0

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

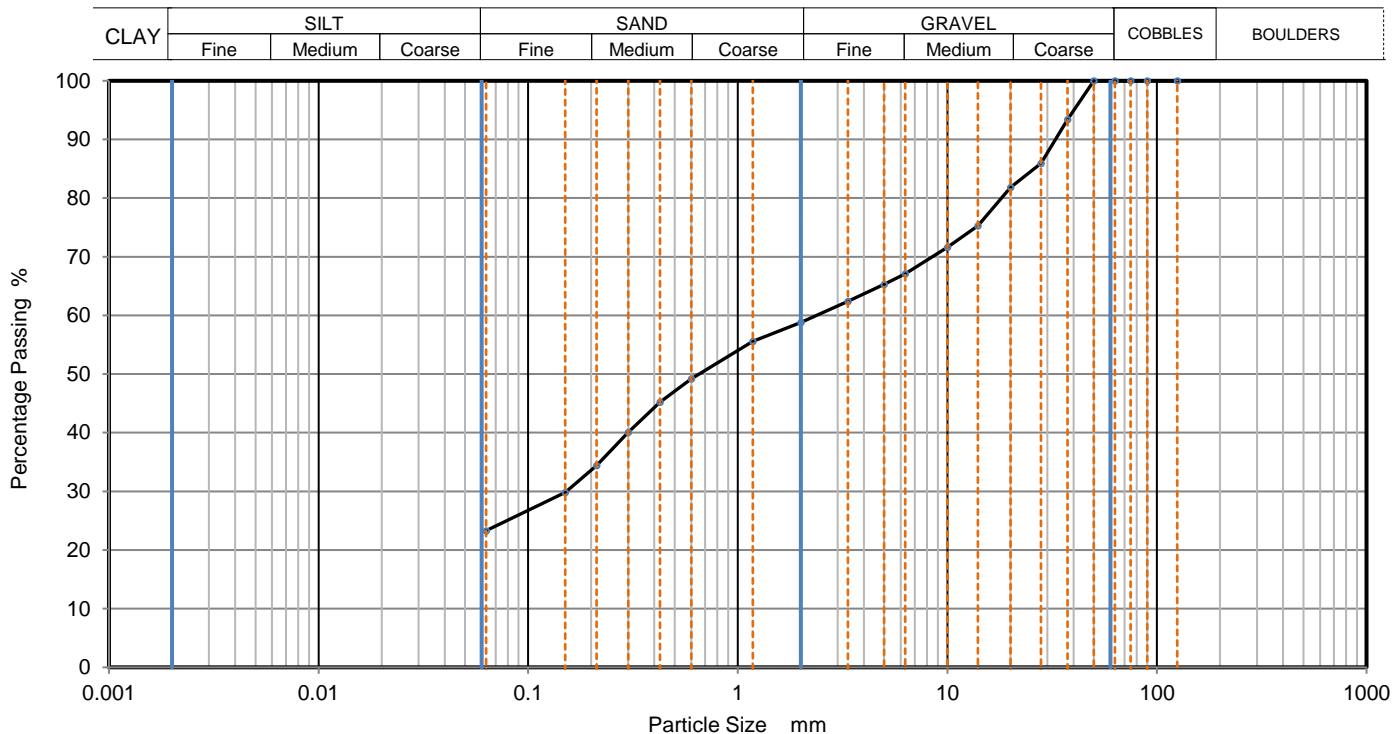
Approved
Stephen Watson





PARTICLE SIZE DISTRIBUTION

Job Ref	23-0661
Borehole/Pit No.	TP06
Sample No.	5
Sample Depth (m)	Top 2.00
	Base
Sample Type	B
KeyLAB ID	Caus2023060237



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	86		
20	82		
14	75		
10	72		
6.3	67		
5	65		
3.35	62		
2	59		
1.18	56		
0.6	49		
0.425	45		
0.3	40		
0.212	34		
0.15	30		
0.063	23		

Dry Mass of sample, g 3517

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	41.2
Sand	35.5
Fines <0.063mm	23.0

Grading Analysis	
D100	mm
D60	mm 2.37
D30	mm 0.153
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377-2 :1990 unless noted below

Approved
Stephen Watson






Moisture Condition Value at Natural Moisture Content Summary of Results

Project No. 23-0661	Project Name Mourne View, Skerries Co. Dublin
------------------------	--

Hole No.	Sample				Specimen Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
	Ref	Top	Base	Type						
TP02	3	1.00		B	Brown sandy slightly gravelly silty CLAY.	17	10	13.3	Best fit line	
TP03	3	1.00		B	Brown sandy slightly gravelly silty CLAY.	16	5.7	13.5	Best fit line	
TP04	3	1.00		B	Brown sandy slightly gravelly silty CLAY.	12	7.8	14.4	Best fit line	
TP05	3	1.00		B	Brown sandy slightly gravelly silty CLAY.	5	17	8.5	Best fit line	
TP06	3	1.00		B	Brown sandy slightly gravelly silty CLAY.	13	8.5	15.1	Best fit line	

LAB 10R - Version 7

<p>Key</p> <p>Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise</p>	<p>Date Printed</p> <p style="text-align: center;">30/06/2023</p>	<p>Approved By</p> <p style="text-align: center;">Stephen Watson</p>	 <p>10122</p>
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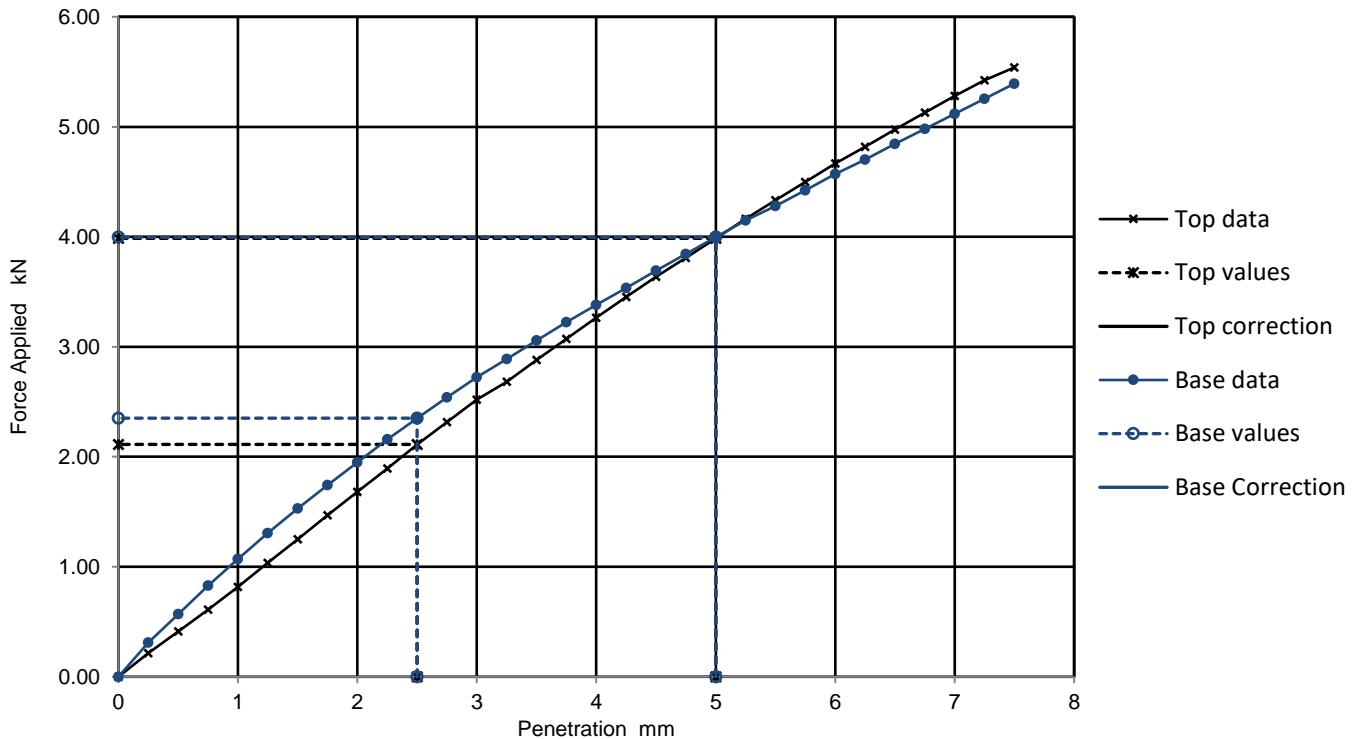
California Bearing Ratio (CBR)

Job Ref	23-0661
Borehole/Pit No.	TP02
Sample No.	4
Depth m	1.80
Sample Type	B
KeyLAB ID	Caus2023060225
CBR Test Number	1

Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	9 %	Dry density after soaking	Mg/m3
Initial Specimen details	Bulk density	2.14 Mg/m3	Surcharge applied
	Dry density	1.91 Mg/m3	4.5 kg
	Moisture content	12 %	3 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	16.0	20.0	20.0	20.0	12
BASE	No	18.0	20.0	20.0		13

General remarks

Test specific remarks

Approved

Tested at natural moisture content.	Average result may be reported if within 10% of the mean CBR value of top and base.	Stephen Watson
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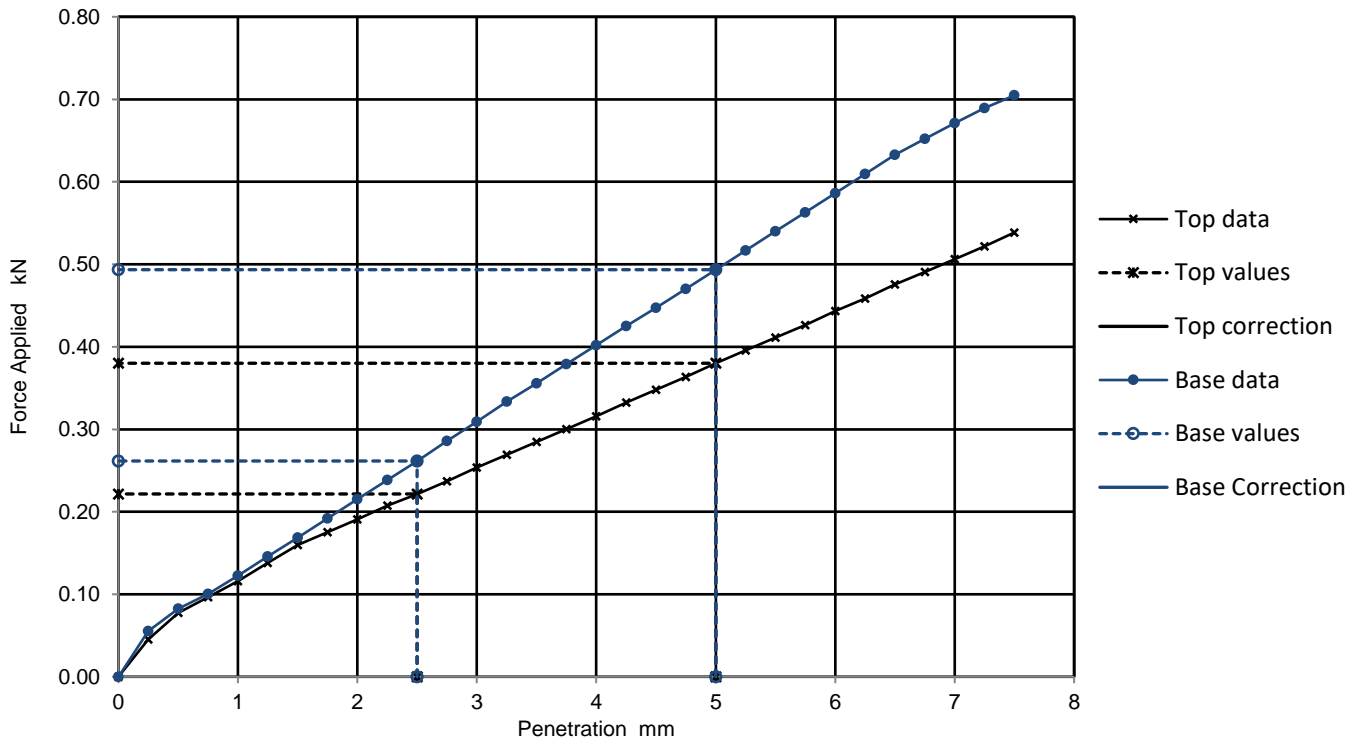
California Bearing Ratio (CBR)

Job Ref	23-0661
Borehole/Pit No.	TP02
Sample No.	5
Depth m	2.00
Sample Type	B
KeyLAB ID	Caus2023060226
CBR Test Number	1

Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	2 %	Dry density after soaking	Mg/m3
Initial Specimen details	Bulk density	2.14 Mg/m3	Surcharge applied
	Dry density	1.95 Mg/m3	4.5 kg
	Moisture content	10 %	3 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	1.7	1.9	1.9	10	
BASE	No	2.0	2.5	2.5		
						8.7

General remarks	Test specific remarks	Approved
Tested at natural moisture content.	Average result may be reported if within 10% of the mean CBR value of top and base.	Stephen Watson





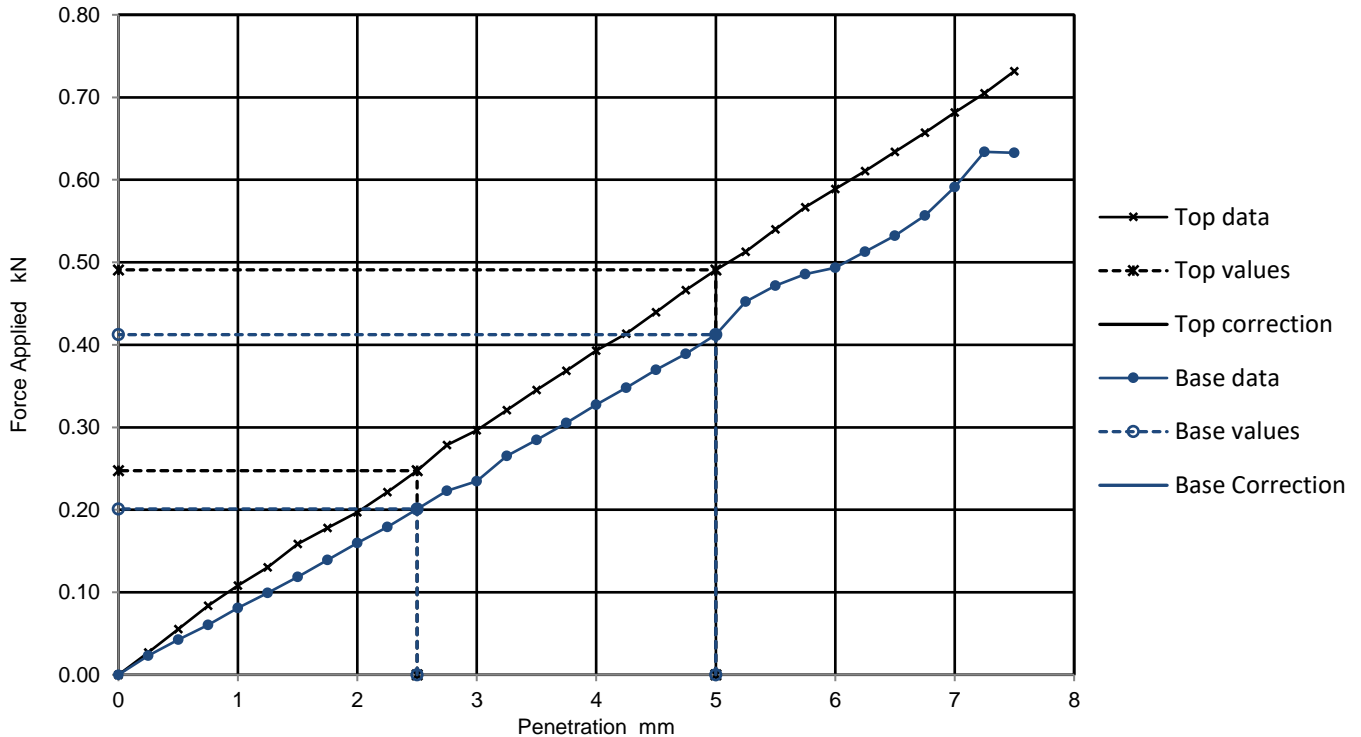
California Bearing Ratio (CBR)

Job Ref	23-0661
Borehole/Pit No.	TP05
Sample No.	4
Depth m	1.20
Sample Type	B
KeyLAB ID	Caus2023060232
CBR Test Number	1

Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	2 %	Dry density after soaking	Mg/m3
Initial Specimen details	Bulk density	2.07 Mg/m3	Surcharge applied
	Dry density	1.77 Mg/m3	4.5 kg
	Moisture content	17 %	3 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	1.9	2.5	2.5	2.3	17
BASE	No	1.5	2.1	2.1		17

General remarks

Test specific remarks

Approved

Tested at natural moisture content.	Average result may be reported if within 10% of the mean CBR value of top and base.	Stephen Watson
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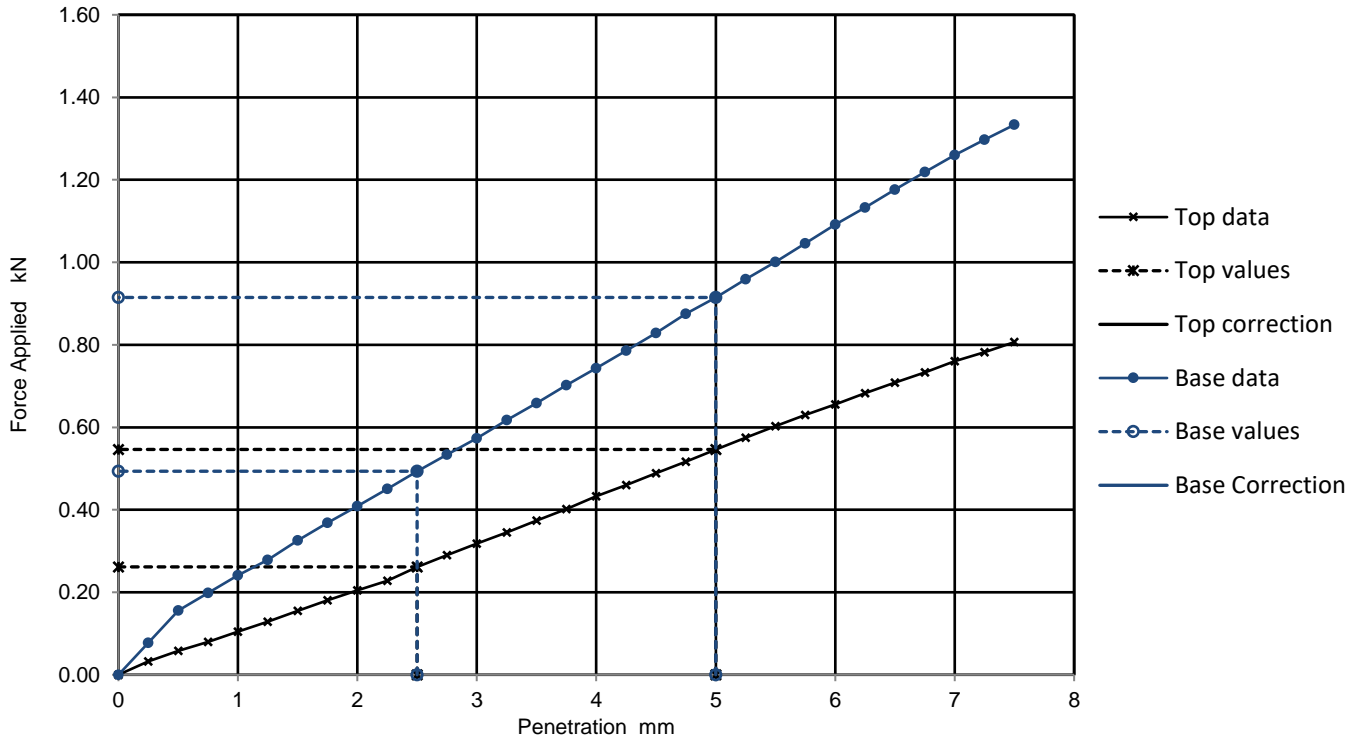
California Bearing Ratio (CBR)

Job Ref	23-0661
Borehole/Pit No.	TP05
Sample No.	5
Depth m	1.70
Sample Type	B
KeyLAB ID	Caus2023060233
CBR Test Number	1

Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	23 %	Dry density after soaking	Mg/m3
Initial Specimen details	Bulk density 2.20 Mg/m3	Surcharge applied	4.5 kg
	Dry density 1.97 Mg/m3		3 kPa
	Moisture content 12 %		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	2.0	2.7	2.7		12
BASE	No	3.7	4.6	4.6		11

General remarks

Test specific remarks

Approved

Tested at natural moisture content.	Average result may be reported if within 10% of the mean CBR value of top and base.	Stephen Watson
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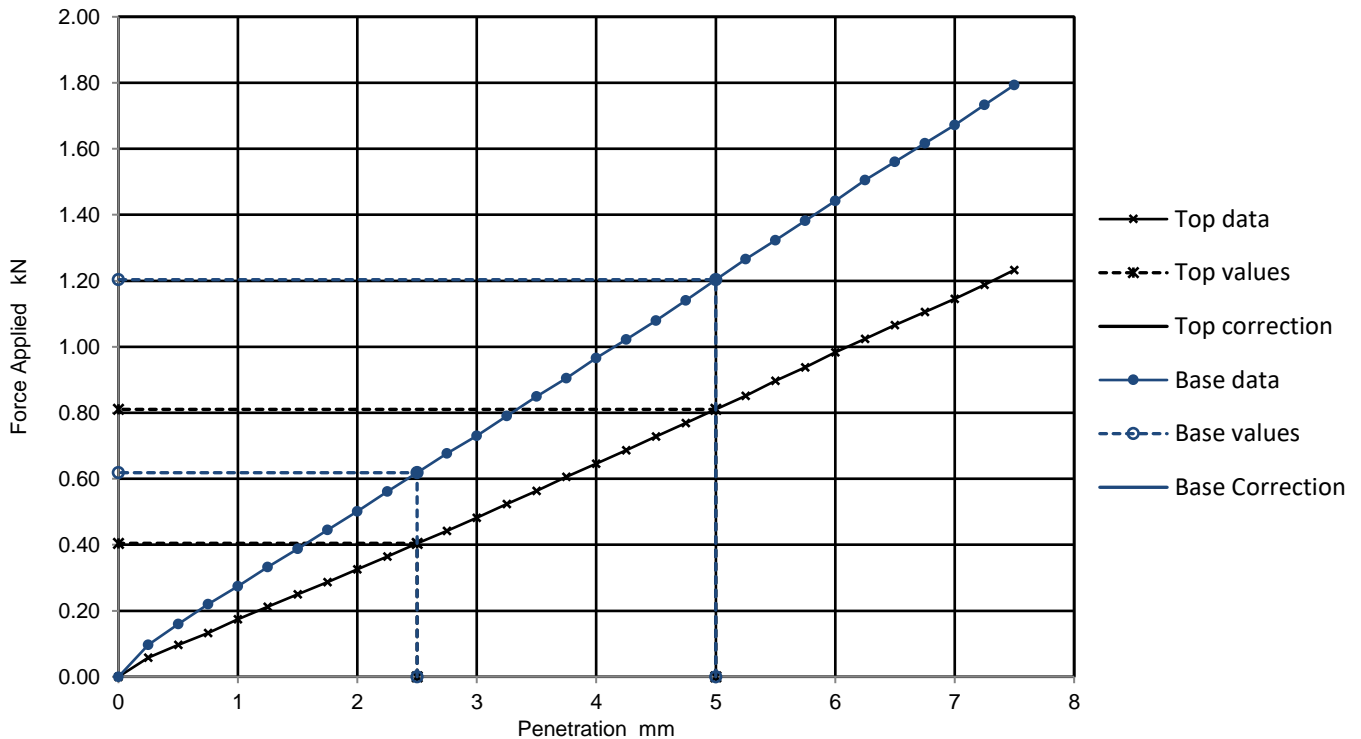
California Bearing Ratio (CBR)

Job Ref	23-0661
Borehole/Pit No.	TP06
Sample No.	4
Depth m	1.90
Sample Type	B
KeyLAB ID	Caus2023060236
CBR Test Number	1

Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	14 %	Dry density after soaking	Mg/m3
Initial Specimen details	Bulk density 2.23 Mg/m3	Surcharge applied	4.5 kg
	Dry density 2.01 Mg/m3		3 kPa
	Moisture content 11 %		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	3.1	4.1	4.1		11
BASE	No	4.7	6.0	6.0		11

General remarks

Test specific remarks

Approved

Tested at natural moisture content.	Average result may be reported if within 10% of the mean CBR value of top and base.	Stephen Watson
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DETS

Certificate of Analysis

Certificate Number 23-14389

Issued: 26-Jun-23

Client Causeway Geotech
8 Drumahiskey Road
Ballymoney
County Antrim
BT53 7QL

Our Reference 23-14389

Client Reference 23-0661

Order No (not supplied)

Contract Title Mourne View, Skerries

Description 5 Soil samples.

Date Received 17-Jun-23

Date Started 19-Jun-23

Date Completed 26-Jun-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis Soil Samples

Our Ref 23-14389

Client Ref 23-0661

Contract Title Mourn View, Skerries

Lab No	2188893	2188894	2188895	2188896	2188897
Sample ID	BH01	BH02	BH03	BH04	BH05
Depth	0.30	0.90	0.50	0.70	1.20
Other ID	2	4	4	4	5
Sample Type	B	B	B	B	B
Sampling Date	16/06/2023	16/06/2023	16/06/2023	16/06/2023	16/06/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Inorganics								
pH	DETSC 2008#		pH	7.8	8.2	8.3	8.0	8.1
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	< 10	< 10	< 10	< 10	< 10
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.04	0.02	0.02	0.03	0.02

Information in Support of the Analytical Results

Our Ref 23-14389
 Client Ref 23-0661
 Contract Mourn View, Skerries

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2188893	BH01 0.30 SOIL	16/06/23	PT 500ml		
2188894	BH02 0.90 SOIL	16/06/23	PT 500ml		
2188895	BH03 0.50 SOIL	16/06/23	PT 500ml		
2188896	BH04 0.70 SOIL	16/06/23	PT 500ml		
2188897	BH05 1.20 SOIL	16/06/23	PT 500ml		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

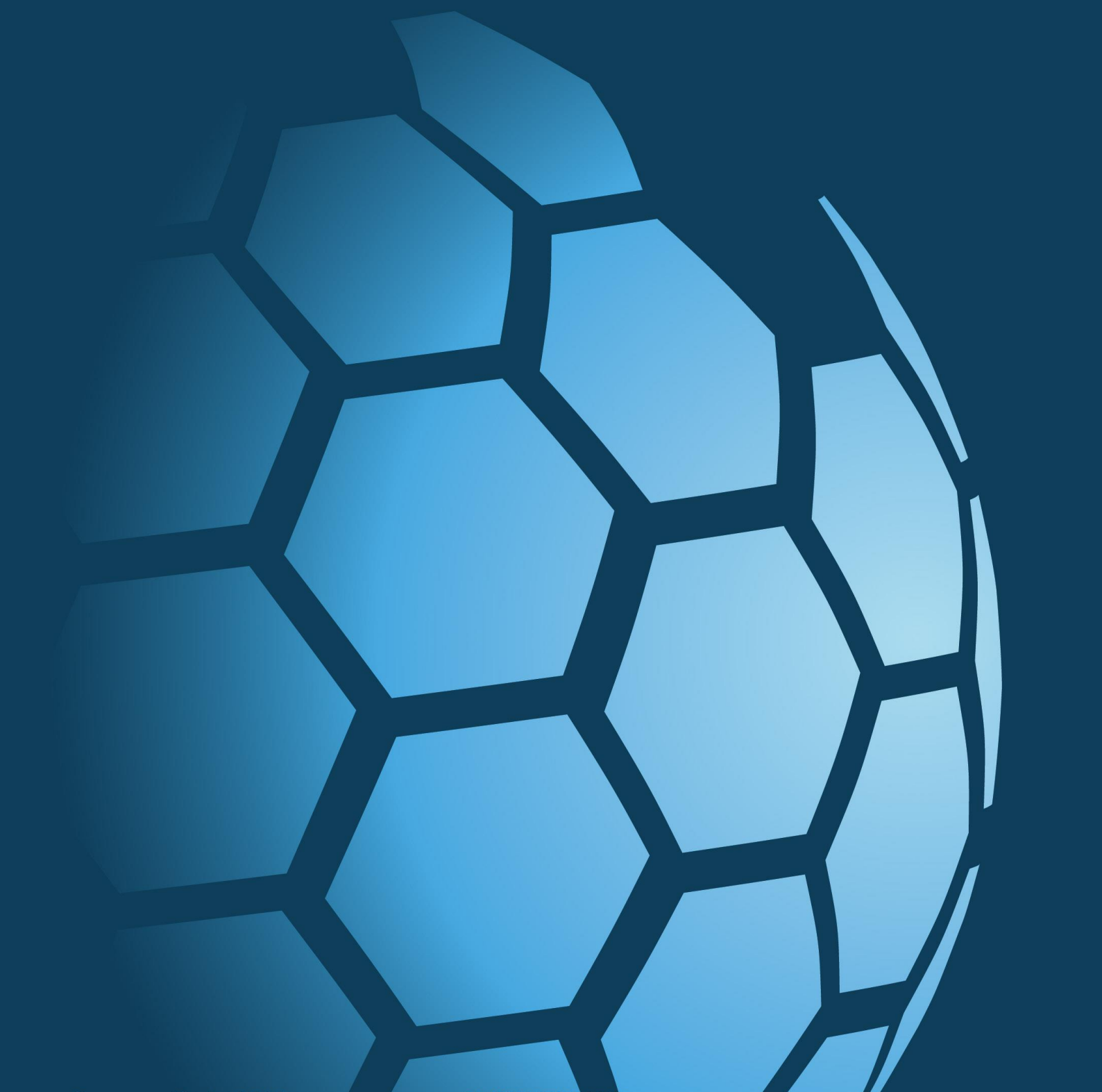
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



CAUSEWAY
— GEOTECH

APPENDIX H
ENVIRONMENTAL LABORATORY TEST RESULTS





DETS

Certificate of Analysis

Certificate Number 23-13141

Issued: 16-Jun-23

Client Causeway Geotech
Unit 1 Fingal House
Stephenstown Industrial Estate
Balbriggan
Co. Dublin
K32 VR66

Our Reference 23-13141

Client Reference 23-0661

Order No (not supplied)

Contract Title Mourne View, Skerries

Description 8 Soil samples, 8 Leachate samples.

Date Received 03-Jun-23

Date Started 05-Jun-23

Date Completed 16-Jun-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181230	2181231	2181232	2181233	2181234	2181235
Sample ID	TP01	TP02	TP03	TP04	TP05	TP06
Depth	0.50	0.50	0.50	0.50	0.50	0.50
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Moisture Content	DETSC 1004	0.1	%	5.8	11	11	9.5	6.6	8.4
Metals									
Antimony	DETSC 2301*	1	mg/kg	1.7	1.8	1.5	1.5	1.8	1.6
Arsenic	DETSC 2301#	0.2	mg/kg	17	18	15	13	15	16
Barium	DETSC 2301#	1.5	mg/kg	41	170	66	76	54	69
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	0.3	0.4	0.3	0.2	0.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.5	0.3	0.3	0.4	0.5
Chromium	DETSC 2301#	0.15	mg/kg	38	30	34	33	41	29
Chromium III	DETSC 2301*	0.15	mg/kg	37	30	34	33	41	29
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	29	31	28	24	24	26
Lead	DETSC 2301#	0.3	mg/kg	12	27	18	16	13	27
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07
Molybdenum	DETSC 2301#	0.4	mg/kg	0.8	2.5	1.0	1.3	1.8	1.5
Nickel	DETSC 2301#	1	mg/kg	49	36	45	37	47	34
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	0.9	< 0.5
Zinc	DETSC 2301#	1	mg/kg	50	62	54	51	58	54
Inorganics									
pH	DETSC 2008#		pH	7.7	7.4	7.3	8.1	7.9	7.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	0.2	0.1	< 0.1	< 0.1	0.2
Total Organic Carbon	DETSC 2084#	0.5	%	< 0.5	1.7	1.1	0.9	0.6	1.9
Sulphide	DETSC 2024*	10	mg/kg	< 10	12	< 10	< 10	< 10	12
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	2.7	2.6	2.6	2.3	2.7
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.01	0.04	0.02	0.03	0.02	0.04
Petroleum Hydrocarbons									
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	2.14					
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg		< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	3.86					
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	2.73					
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg		< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	4.54					
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521*	3.4	mg/kg	< 3.40					
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg		< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic >EC40-EC44: EH_2D_AL	DETSC 3521*	3.4	mg/kg	< 3.40					
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	10	mg/kg		< 10	< 10	< 10	< 10	< 10
Aliphatic C5-C44: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	13.27					

Summary of Chemical Analysis

Soil Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181230	2181231	2181232	2181233	2181234	2181235
Sample ID	TP01	TP02	TP03	TP04	TP05	TP06
Depth	0.50	0.50	0.50	0.50	0.50	0.50
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Aromatic C5-C7: HS_1D_AR	DETS 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETS 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETS 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETS 3072#	0.9	mg/kg		< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic >EC10-EC12: EH_2D_AR	DETS 3521#	0.9	mg/kg	< 0.90					
Aromatic C12-C16: EH_CU_1D_AR	DETS 3072#	0.5	mg/kg		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic >EC12-EC16: EH_2D_AR	DETS 3521#	0.5	mg/kg	< 0.50					
Aromatic C16-C21: EH_CU_1D_AR	DETS 3072#	0.6	mg/kg		< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic >EC16-EC21: EH_2D_AR	DETS 3521#	0.6	mg/kg	1.85					
Aromatic C21-C35: EH_CU_1D_AR	DETS 3072#	1.4	mg/kg		< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic >EC21-EC35: EH_2D_AR	DETS 3521#	1.4	mg/kg	2.19					
Aromatic >EC35-EC40: EH_2D_AR	DETS 3521*	1.4	mg/kg	< 1.40					
Aromatic C35-C44: EH_CU_1D_AR	DETS 3072*	1.4	mg/kg		< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic >EC40-EC44: EH_2D_AR	DETS 3521*	1.4	mg/kg	< 1.40					
Aromatic C10-C44: EH_CU_1D_AR	DETS 3072*	10	mg/kg		< 10	< 10	< 10	< 10	< 10
Aromatic C5-C44: EH_2D+HS_1D_AR	DETS 3521*	10	mg/kg	< 10.00					
TPH Ali/Aro C5-C44: EH_2D+HS_1D_Total	DETS 3521*	10	mg/kg	13.27					
Ali/Aro C10-C44: EH_CU_1D_Total	DETS 3072*	10	mg/kg		< 10	< 10	< 10	< 10	< 10
Benzene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETS 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
C24-C40 Lube Oil Range Organics (LORO): EH_1D_Total	DETS 3311#	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
PAHs									
Naphthalene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETS 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181230	2181231	2181232	2181233	2181234	2181235
Sample ID	TP01	TP02	TP03	TP04	TP05	TP06
Depth	0.50	0.50	0.50	0.50	0.50	0.50
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Coronene	DETSC 3301*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
PCBs									
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	0.7	0.5	0.6	0.3	0.7

Summary of Chemical Analysis

Soil Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181236	2181237
Sample ID	ST01	ST02
Depth	0.50	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	30/05/2023	30/05/2023
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Preparation					
Moisture Content	DETSC 1004	0.1	%	9.9	12
Metals					
Antimony	DETSC 2301*	1	mg/kg	1.3	1.5
Arsenic	DETSC 2301#	0.2	mg/kg	21	16
Barium	DETSC 2301#	1.5	mg/kg	60	78
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	0.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.4	0.5
Chromium	DETSC 2301#	0.15	mg/kg	27	30
Chromium III	DETSC 2301*	0.15	mg/kg	< 0.15	30
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	30	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	22	34
Lead	DETSC 2301#	0.3	mg/kg	18	42
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.10
Molybdenum	DETSC 2301#	0.4	mg/kg	1.7	1.4
Nickel	DETSC 2301#	1	mg/kg	31	32
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	60	62
Inorganics					
pH	DETSC 2008#		pH	7.7	7.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1	0.1
Total Organic Carbon	DETSC 2084#	0.5	%	1.3	1.7
Sulphide	DETSC 2024*	10	mg/kg	< 10	< 10
Sulphur (free)	DETSC 3049#	0.75	mg/kg	2.5	2.9
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.02	0.05
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg		
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg		
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg		
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg		
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521*	3.4	mg/kg		
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4
Aliphatic >EC40-EC44: EH_2D_AL	DETSC 3521*	3.4	mg/kg		
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	10	mg/kg	< 10	< 10
Aliphatic C5-C44: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg		

Summary of Chemical Analysis

Soil Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181236	2181237
Sample ID	ST01	ST02
Depth	0.50	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	30/05/2023	30/05/2023
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg		
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg		
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg		
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg		
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg		
Aromatic C35-C44: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4
Aromatic >EC40-EC44: EH_2D_AR	DETSC 3521*	1.4	mg/kg		
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C44: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg		
TPH Ali/Aro C5-C44: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg		
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	10	mg/kg	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
C24-C40 Lube Oil Range Organics (LORO): EH_1D_Total	DETSC 3311#	10	mg/kg	< 10	< 10
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1

Summary of Chemical Analysis Soil Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourn View, Skerries

Lab No	2181236	2181237
Sample ID	ST01	ST02
Depth	0.50	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	30/05/2023	30/05/2023
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Coronene	DETSC 3301*	0.1	mg/kg	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6
PCBs					
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	0.7

Summary of Chemical Analysis

Leachate Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181238	2181239	2181240	2181241	2181242	2181243	2181244	2181245
Sample ID	TP01	TP02	TP03	TP04	TP05	TP06	ST01	ST02
Depth	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Other ID								
Sample Type	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE
Sampling Date	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023	30/05/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units								
Inorganics											
Un-Ionised Ammonia	*	0.02	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.07	0.04	0.06	0.16	0.09	0.05	0.05	0.06

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id TP01 0.50

Sample Numbers 2181230 2181238

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	< 0.5	3	5	6
DETSC 2003# Loss On Ignition	%	1.7	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.7	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.61	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	1.4	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.32	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.1	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.27	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	< 1.3	< 0.01	4	50	200
DETSC 2055 Chloride as Cl	1000	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	< 100	< 0.1	10	150	500
DETSC 2055 Sulphate as SO4	1800	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	13000	130	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	4700	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.7
DETSC 2009 Conductivity uS/cm	18.6
* Temperature*	18.0
Mass of Sample Kg*	0.100
Mass of dry Sample Kg*	0.094
Stage 1	
Volume of Leachant L2*	0.936
Volume of Eluate VE1*	0.88

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive Hazardous Waste

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id TP02 0.50

Sample Numbers 2181231 2181239

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.7	3	5	6
DETSC 2003# Loss On Ignition	%	4.2	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.4	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	1	0.01	0.5	2	25
DETSC 2306 Barium as Ba	3.9	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	0.1	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.3	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	1.1	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	4.7	0.047	4	50	200
DETSC 2055 Chloride as Cl	720	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	170	1.7	10	150	500
DETSC 2055 Sulphate as SO4	1400	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	29000	290	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	3800	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.3
DETSC 2009 Conductivity uS/cm	41.2
* Temperature*	18.0
Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.098
Stage 1	
Volume of Leachant L2*	0.965
Volume of Eluate VE1*	0.91

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id TP03 0.50

Sample Numbers 2181232 2181240

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.1	3	5	6
DETSC 2003# Loss On Ignition	%	3.4	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.3	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.63	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	1.7	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	0.78	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.57	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	4.8	0.048	4	50	200
DETSC 2055 Chloride as Cl	720	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	110	1.1	10	150	500
DETSC 2055 Sulphate as SO4	1500	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	17000	170	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	5900	59	500	800	1000

Additional Information	
DETSC 2008 pH	6.4
DETSC 2009 Conductivity uS/cm	24.1
* Temperature*	18.0
Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.098
Stage 1	
Volume of Leachant L2*	0.971
Volume of Eluate VE1*	0.92

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id TP04 0.50

Sample Numbers 2181233 2181241

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	0.9	3	5	6
DETSC 2003# Loss On Ignition	%	2.8	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	8.1	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.5	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	2.6	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	0.77	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.36	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	4.7	0.047	4	50	200
DETSC 2055 Chloride as Cl	780	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	100	1	10	150	500
DETSC 2055 Sulphate as SO4	2100	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	33000	330	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	3400	< 50	500	800	1000

Additional Information

DETSC 2008 pH	6.4
DETSC 2009 Conductivity uS/cm	47.0
* Temperature*	18.0

Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.100

Stage 1

Volume of Leachant L2*	0.985
Volume of Eluate VE1*	0.93

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id TP05 0.50

Sample Numbers 2181234 2181242

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	0.6	3	5	6
DETSC 2003# Loss On Ignition	%	2.1	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.9	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.28	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	1.3	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	0.77	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.12	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	1.5	0.015	4	50	200
DETSC 2055 Chloride as Cl	840	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	120	1.2	10	150	500
DETSC 2055 Sulphate as SO4	1200	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	18000	180	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	2900	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.5
DETSC 2009 Conductivity uS/cm	25.3
* Temperature*	18.0
Mass of Sample Kg*	0.100
Mass of dry Sample Kg*	0.093
Stage 1	
Volume of Leachant L2*	0.927
Volume of Eluate VE1*	0.87

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive Hazardous Waste

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id TP06 0.50

Sample Numbers 2181235 2181243

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.9	3	5	6
DETSC 2003# Loss On Ignition	%	4.3	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.4	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.5	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	2.8	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.29	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.7	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.53	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.27	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	4.9	0.049	4	50	200
DETSC 2055 Chloride as Cl	740	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	< 100	< 0.1	10	150	500
DETSC 2055 Sulphate as SO4	1100	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	23000	230	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	2400	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.4
DETSC 2009 Conductivity uS/cm	32.7
* Temperature*	18.0
Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.101
Stage 1	
Volume of Leachant L2*	0.999
Volume of Eluate VE1*	0.94

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id ST01 0.50

Sample Numbers 2181236 2181244

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.3	3	5	6
DETSC 2003# Loss On Ignition	%	3.2	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.7	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	2.1	0.021	0.5	2	25
DETSC 2306 Barium as Ba	3	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	0.048	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.2	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.36	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	0.18	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.29	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	17	0.17	4	50	200
DETSC 2055 Chloride as Cl	930	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	420	4.2	10	150	500
DETSC 2055 Sulphate as SO4	1400	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	29000	290	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	3100	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.6
DETSC 2009 Conductivity uS/cm	40.7
* Temperature*	18.0

Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.099
Stage 1	
Volume of Leachant L2*	0.98
Volume of Eluate VE1*	0.93

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id ST02 0.50

Sample Numbers 2181237 2181245

Date Analysed 16/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.7	3	5	6
DETSC 2003# Loss On Ignition	%	3.9	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.9	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.68	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	5.1	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.28	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.4	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	0.51	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.65	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	2.9	0.029	4	50	200
DETSC 2055 Chloride as Cl	740	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	140	1.4	10	150	500
DETSC 2055 Sulphate as SO4	2800	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	37000	370	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	3000	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.6
DETSC 2009 Conductivity uS/cm	53.0
* Temperature*	18.0

Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.097
Stage 1	
Volume of Leachant L2*	0.953
Volume of Eluate VE1*	0.9

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

Summary of Asbestos Analysis

Soil Samples

Our Ref 23-13141

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2181230	TP01 0.50	SOIL	NAD	none	Lee Kerridge
2181231	TP02 0.50	SOIL	NAD	none	Lee Kerridge
2181232	TP03 0.50	SOIL	NAD	none	Lee Kerridge
2181233	TP04 0.50	SOIL	NAD	none	Lee Kerridge
2181234	TP05 0.50	SOIL	NAD	none	Lee Kerridge
2181235	TP06 0.50	SOIL	NAD	none	Lee Kerridge
2181236	ST01 0.50	SOIL	NAD	none	Lee Kerridge
2181237	ST02 0.50	SOIL	NAD	none	Lee Kerridge

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-13141
 Client Ref 23-0661
 Contract Mourn View, Skerries

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2181230	TP01 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181231	TP02 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181232	TP03 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181233	TP04 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181234	TP05 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181235	TP06 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181236	ST01 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181237	ST02 0.50 SOIL	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181238	TP01 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181239	TP02 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181240	TP03 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181241	TP04 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181242	TP05 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181243	TP06 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181244	ST01 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181245	ST02 0.50 LEACHATE	30/05/23	GJ 250ml, GJ 60ml, PT 500ml x3		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C35-C44	EH_CU_1D_AL
Aliphatic >EC40-EC44	EH_2D_AL
Aliphatic C10-C44	EH_CU_1D_AL
Aliphatic C5-C44	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic >EC21-EC35	EH_2D_AR

Aromatic >EC35-EC40	EH_2D_AR
Aromatic C35-C44	EH_CU_1D_AR
Aromatic >EC40-EC44	EH_2D_AR
Aromatic C10-C44	EH_CU_1D_AR
Aromatic C5-C44	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C44	EH_2D+HS_1D_Total
Ali/Aro C10-C44	EH_CU_1D_Total
TPH (C10-C40)	EH_1D_Total
C24-C40 Lube Oil Range Organics (L	EH_1D_Total

End of Report



DETS

Certificate of Analysis

Certificate Number 23-13142

Issued: 20-Jun-23

Client Causeway Geotech
Unit 1 Fingal House
Stephenstown Industrial Estate
Balbriggan
Co. Dublin
K32 VR66

Our Reference 23-13142

Client Reference 23-0661

Order No (not supplied)

Contract Title Mourne View, Skerries

Description 3 Soil samples, 3 Leachate samples.

Date Received 03-Jun-23

Date Started 05-Jun-23

Date Completed 20-Jun-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Kirk Bridgewood
General Manager



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Summary of Chemical Analysis

Soil Samples

Our Ref 23-13142

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181246	2181247	2181248
Sample ID	BH01	BH02	BH03
Depth	0.50	0.50	0.50
Other ID			
Sample Type	SOIL	SOIL	SOIL
Sampling Date	01/06/2023	01/06/2023	01/06/2023
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Preparation						
Moisture Content	DETSC 1004	0.1	%	9.2	8.0	9.1
Metals						
Antimony	DETSC 2301*	1	mg/kg	1.6	1.6	1.6
Arsenic	DETSC 2301#	0.2	mg/kg	16	21	16
Barium	DETSC 2301#	1.5	mg/kg	62	58	66
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.3	< 0.2	0.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.3	0.3
Chromium	DETSC 2301#	0.15	mg/kg	32	36	31
Chromium III	DETSC 2301*	0.15	mg/kg	32	36	31
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	29	28	25
Lead	DETSC 2301#	0.3	mg/kg	19	11	20
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	2.2	1.1	1.1
Nickel	DETSC 2301#	1	mg/kg	40	51	37
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	60	56	57
Inorganics						
pH	DETSC 2008#		pH	8.0	7.9	7.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1	< 0.1	0.1
Total Organic Carbon	DETSC 2084#	0.5	%	1.1	< 0.5	1.2
Sulphide	DETSC 2024*	10	mg/kg	12	< 10	< 10
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	< 0.75	< 0.75
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.03	0.02	0.03
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	3.26	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	3.66	6.02	3.89
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	3.49	4.89	1.66
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	4.99	16.39	5.28
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521*	3.4	mg/kg	< 3.40	6.27	< 3.40
Aliphatic >EC40-EC44: EH_2D_AL	DETSC 3521*	3.4	mg/kg	< 3.40	< 3.40	< 3.40
Aliphatic C5-C44: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	12.14	36.83	10.83
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	3.66	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	8.66	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	< 0.60	11.27	< 0.60

Summary of Chemical Analysis

Soil Samples

Our Ref 23-13142

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181246	2181247	2181248
Sample ID	BH01	BH02	BH03
Depth	0.50	0.50	0.50
Other ID			
Sample Type	SOIL	SOIL	SOIL
Sampling Date	01/06/2023	01/06/2023	01/06/2023
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	2.14	20.26	2.16
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40
Aromatic >EC40-EC44: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40
Aromatic C5-C44: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	43.86	< 10.00
TPH Ali/Aro C5-C44: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	12.14	80.68	10.83
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01
C24-C40 Lube Oil Range Organics (LORO): EH_1D_Total	DETSC 3311#	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1
Coronene	DETSC 3301*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	2.6	< 1.6	< 1.6
PCBs						
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.7	0.3	0.8

Summary of Chemical Analysis

Leachate Samples

Our Ref 23-13142

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	2181249	2181250	2181251
Sample ID	BH01	BH02	BH03
Depth	0.50	0.50	0.50
Other ID			
Sample Type	LEACHATE	LEACHATE	LEACHATE
Sampling Date	01/06/2023	01/06/2023	01/06/2023
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Preparation						
BS EN 12457 10:1	DETSC 1009*			Y	Y	Y
Inorganics						
Un-Ionised Ammonia	*	0.02	mg/l	< 0.02	< 0.02	< 0.02
Ammoniacal Nitrogen as NH ₄	DETSC 2207	0.015	mg/l	0.04	1.1	0.12

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13142

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id BH01 0.50

Sample Numbers 2181246 2181249

Date Analysed 20/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.1	3	5	6
DETSC 2003# Loss On Ignition	%	3.0	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	2.6	100	n/a	n/a
DETSC 2008# pH	pH Units	8.0	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.57	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	3.3	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.1	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.36	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	4	0.04	4	50	200
DETSC 2055 Chloride as Cl	700	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	< 100	< 0.1	10	150	500
DETSC 2055 Sulphate as SO4	1400	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	28000	280	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	2600	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.4
DETSC 2009 Conductivity uS/cm	40.3
* Temperature*	18.0
Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.100
Stage 1	
Volume of Leachant L2*	0.988
Volume of Eluate VE1*	0.93

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13142

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id BH02 0.50

Sample Numbers 2181247 2181250

Date Analysed 20/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	< 0.5	3	5	6
DETSC 2003# Loss On Ignition	%	2.2	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.9	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.68	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	2.9	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	0.92	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.17	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	2.3	0.023	4	50	200
DETSC 2055 Chloride as Cl	930	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	< 100	< 0.1	10	150	500
DETSC 2055 Sulphate as SO4	1900	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	15000	150	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	3200	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.5
DETSC 2009 Conductivity uS/cm	21.4
* Temperature*	18.0
Mass of Sample Kg*	0.100
Mass of dry Sample Kg*	0.092
Stage 1	
Volume of Leachant L2*	0.912
Volume of Eluate VE1*	0.86

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-13142

Client Ref 23-0661

Contract Title Mourne View, Skerries

Sample Id BH03 0.50

Sample Numbers 2181248 2181251

Date Analysed 20/06/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.2	3	5	6
DETSC 2003# Loss On Ignition	%	3.4	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	7.7	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.64	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	3.5	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	0.29	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.43	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.7	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	0.56	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.58	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	6.9	0.069	4	50	200
DETSC 2055 Chloride as Cl	690	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	140	1.4	10	150	500
DETSC 2055 Sulphate as SO4	1500	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	18000	180	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	2400	< 50	500	800	1000

Additional Information	
DETSC 2008 pH	6.3
DETSC 2009 Conductivity uS/cm	25.3
* Temperature*	18.0
Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.100
Stage 1	
Volume of Leachant L2*	0.99
Volume of Eluate VE1*	0.94

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

Summary of Asbestos Analysis

Soil Samples

Our Ref 23-13142

Client Ref 23-0661

Contract Title Mourne View, Skerries

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2181246	BH01 0.50	SOIL	NAD	none	Keith Wilson
2181247	BH02 0.50	SOIL	NAD	none	Keith Wilson
2181248	BH03 0.50	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-13142
 Client Ref 23-0661
 Contract Mourn View, Skerries

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2181246	BH01 0.50 SOIL	01/06/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181247	BH02 0.50 SOIL	01/06/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181248	BH03 0.50 SOIL	01/06/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181249	BH01 0.50 LEACHATE	01/06/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181250	BH02 0.50 LEACHATE	01/06/23	GJ 250ml, GJ 60ml, PT 500ml x3		
2181251	BH03 0.50 LEACHATE	01/06/23	GJ 250ml, GJ 60ml, PT 500ml x3		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic >EC40-EC44	EH_2D_AL
Aliphatic C5-C44	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic >EC40-EC44	EH_2D_AR
Aromatic C5-C44	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C44	EH_2D+HS_1D_Total
TPH (C10-C40)	EH_1D_Total
C24-C40 Lube Oil Range Organics (LO)	EH_1D_Total

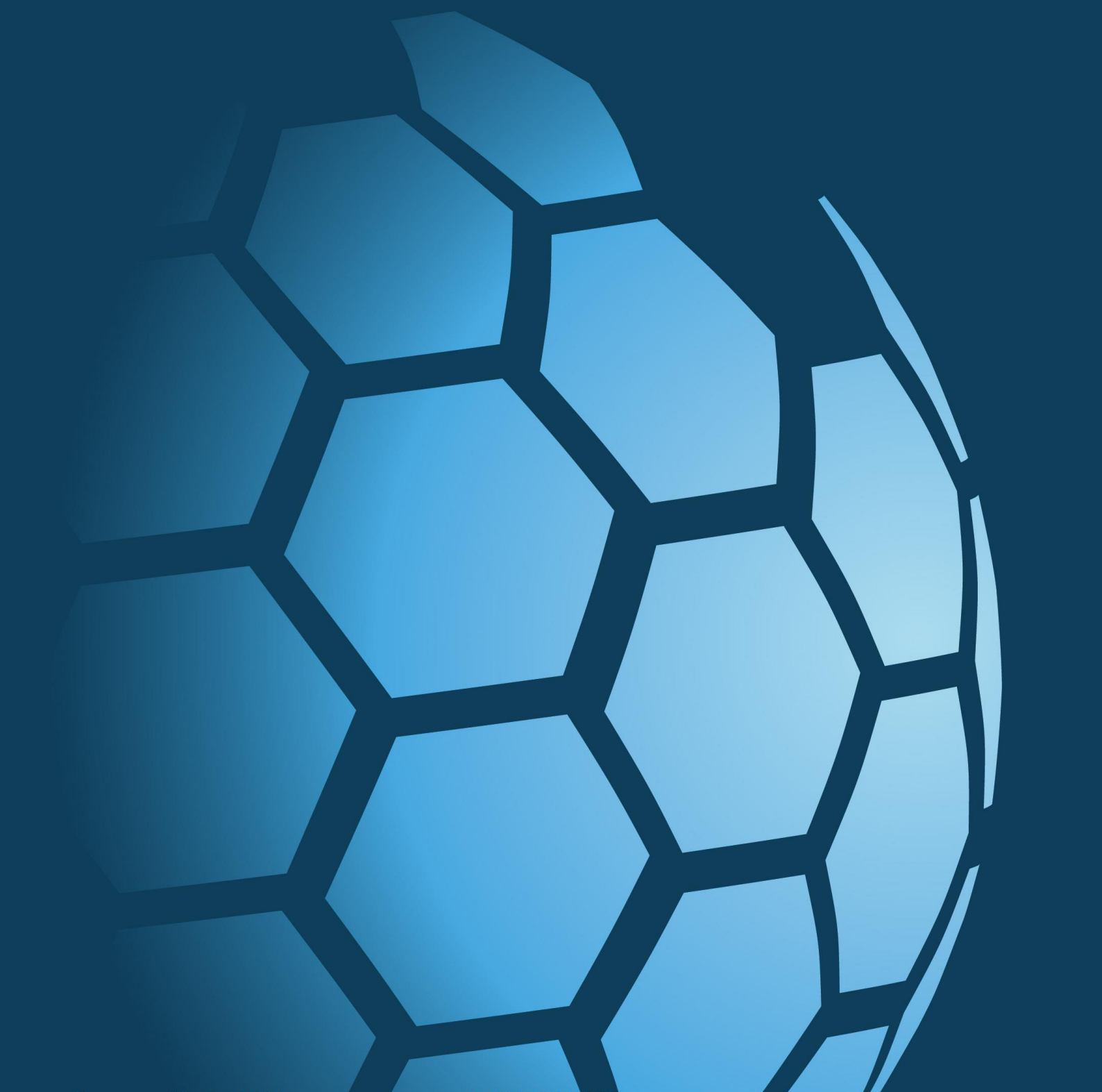
End of Report



CAUSEWAY
— GEOTECH

APPENDIX I

SPT HAMMER ENERGY MEASUREMENT REPORT



SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Southern Testing
Unit 11
Charlwoods Road
East Grinstead
West Sussex
RH19 2HU

SPT Hammer Ref: T7.
Test Date: 18/02/2023
Report Date: 20/02/2023
File Name: T7..spt
Test Operator: RWS

Instrumented Rod Data

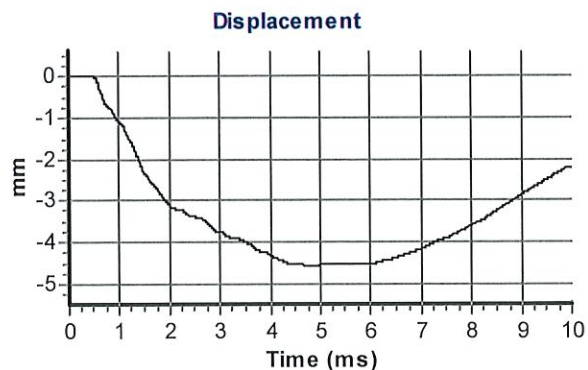
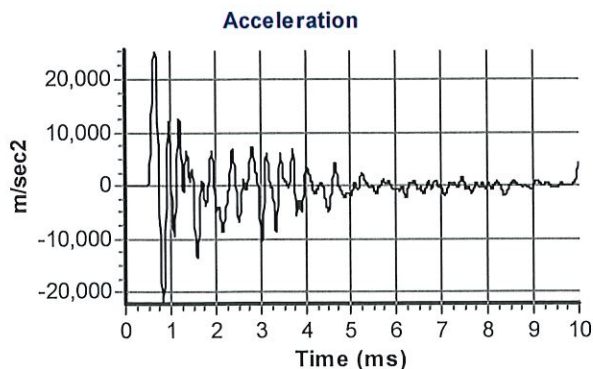
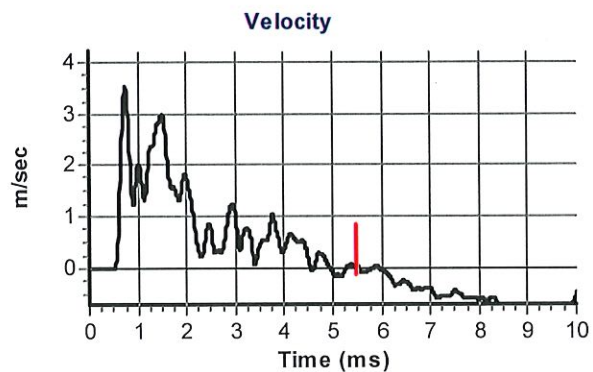
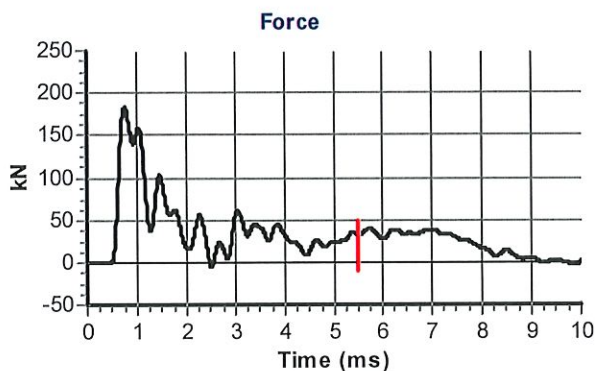
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.7
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 64786
Accelerometer No.2: 64789

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

CAUSEWAY



Calculations

Area of Rod A (mm²): 996
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 354

Energy Ratio E_r (%): **75**

Signed: Bob Stewart
Title: Technician

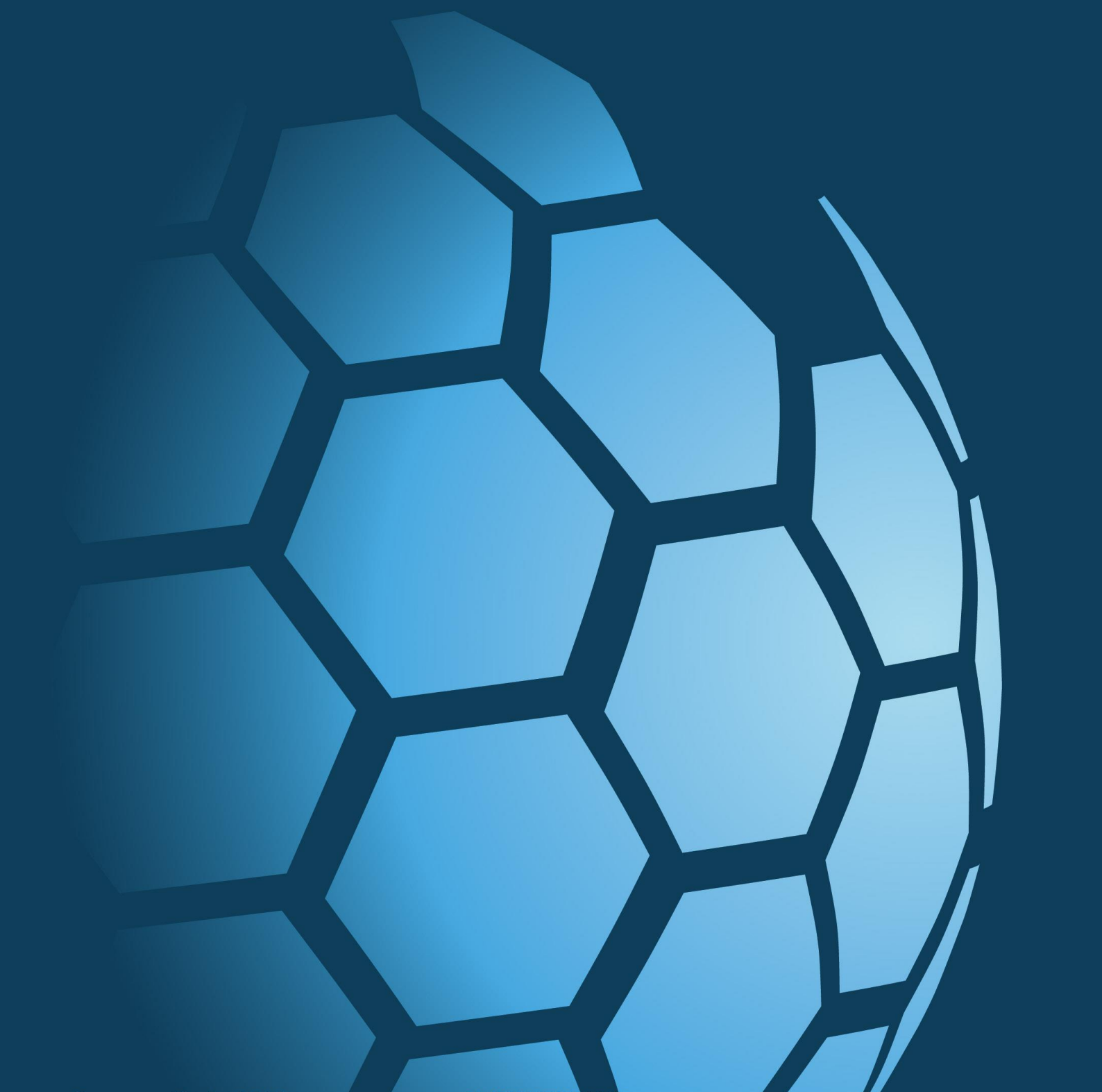
The recommended calibration interval is 12 months



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APPENDIX J

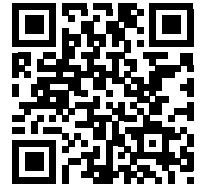
WASTE CLASSIFICATION REPORT



Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



U1TA8-FSWRH-A72MQ

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

Job name

23-0661 Mourne View

Description/Comments

Waste classification on samples recovered from site in June 2023.

Project

23-0661

Site

Mourne View, Skerries

Classified by

Name: Stephen Franey	Company: Causeway Geotech Ltd
Date: 22 Jun 2023 06:25 GMT	8 Drumahiskey Road
Telephone: 028 2766 6640	Ballymoney
	BT53 7QL

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

CERTIFIED

Course
 Hazardous Waste Classification
 Most recent 3 year Refresher

Date
 06 Aug 2020
 01 Aug 2023 *

Next 3 year Refresher due by Aug 2023
 * training course booked

Purpose of classification

2 - Material Characterisation

Address of the waste

Mourne View, Skerries

Post Code N/A

Description of industry/producer giving rise to the waste

Development of open green space for residential properties

Description of the specific process, sub-process and/or activity that created the waste

Excavation of soils for foundations and site development

Description of the waste

Made ground (sandy gravelly clay) and fluvio-glacial deposit (sands and gravels interspersed with layers of firm to stiff sandy gravelly clay or silt)

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	WAC Results		Page
					Inert	Non Haz	
1	TP01/0.50/2023-05-30		Non Hazardous		Pass	Pass	3
2	TP02/0.50/2023-05-30		Non Hazardous		Pass	Pass	7
3	TP03/0.50/2023-05-30		Non Hazardous		Pass	Pass	11
4	TP04/0.50/2023-05-30		Non Hazardous		Pass	Pass	15
5	TP05/0.50/2023-05-30		Non Hazardous		Pass	Pass	19
6	TP06/0.50/2023-05-30		Non Hazardous		Pass	Pass	23
7	ST01/0.50/2023-05-30		Non Hazardous		Pass	Pass	27
8	ST02/0.50/2023-05-30		Non Hazardous		Pass	Pass	31
9	BH01/0.50/2023-06-01		Non Hazardous		Pass	Pass	35
10	BH02/0.50/2023-06-01		Non Hazardous		Pass	Pass	39
11	BH03/0.50/2023-06-01		Non Hazardous		Pass	Pass	43

Related documents

#	Name	Description
1	23-0661 Mourn View.BATCH	DETS North .batch file used to populate the Job
2	23-13141.hwol	DETS North .hwol file used to populate the Job
3	23-13142.hwol	DETS North .hwol file used to populate the Job
4	Example waste stream template for contaminated soils	waste stream template used to create this Job

WAC results

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate the samples in this Job: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

Report

Created by: Stephen Franey

Created date: 22 Jun 2023 06:25 GMT

Appendices	Page
Appendix A: Classifier defined and non EU CLP determinands	47
Appendix B: Rationale for selection of metal species	48
Appendix C: Version	49

Classification of sample: TP01/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP01/0.50/2023-05-30	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
5.8% (wet weight correction)		

Hazard properties

None identified

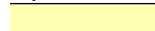



Determinands

Moisture content: 5.8% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				1.7	mg/kg	1.197	1.917	mg/kg	0.000192 %	✓	
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				17	mg/kg	1.32	21.144	mg/kg	0.00211 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	barium { barium sulphide }				41	mg/kg	1.233	47.64	mg/kg	0.00476 %	✓	
	016-002-00-X	244-214-4	21109-95-5									
4	boron { diboron trioxide }				<0.2	mg/kg	3.22	<0.644	mg/kg	<0.0000644 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				0.2	mg/kg	1.142	0.215	mg/kg	0.0000215 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				37	mg/kg	1.462	50.941	mg/kg	0.00509 %	✓	
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				1.6	mg/kg	2.27	3.421	mg/kg	0.000342 %	✓	
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				29	mg/kg	1.126	30.757	mg/kg	0.00308 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	12	mg/kg	1.56	17.632	mg/kg	0.00113 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	mercury { mercury dichloride }				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
11	molybdenum { molybdenum(VI) oxide }				0.8	mg/kg	1.5	1.131	mg/kg	0.000113 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
12	nickel { nickel chromate }				49	mg/kg	2.976	137.378	mg/kg	0.0137 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
13	selenium { nickel selenate }				<0.5	mg/kg	2.554	<1.277	mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
14	zinc { zinc chromate }				50	mg/kg	2.774	130.662	mg/kg	0.0131 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
15	TPH (C6 to C40) petroleum group				13.27	mg/kg		12.5	mg/kg	0.00125 %	✓	
			TPH									
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene 601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	toluene 601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
19	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %		<LOD
22	pH PH				7.7 pH		7.7 pH	7.7 pH		
23	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthylene 205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	acenaphthene 201-469-6	83-32-9			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	fluorene 201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	phenanthrene 201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	anthracene 204-371-1	120-12-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	fluoranthene 205-912-4	206-44-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	pyrene 204-927-3	129-00-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
39	coronene 205-881-7	191-07-1			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
40	monohydric phenols P1186				0.5 mg/kg		0.471 mg/kg	0.0000471 %	✓	
41	sulfur { sulfur } 016-094-00-1	231-722-6	7704-34-9		<0.75 mg/kg		<0.75 mg/kg	<0.000075 %		<LOD
42	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0454 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because **No free product present in samples**

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00125%)

WAC results for sample: TP01/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% <0.5	3	5
2	LOI (loss on ignition)	% 1.7	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.7	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg <0.01	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg <0.1	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 130	4,000	60,000

Key

User supplied data

Classification of sample: TP02/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP02/0.50/2023-05-30	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
11%	Entry:
(wet weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

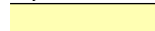



Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	antimony { antimony trioxide }				1.8 mg/kg	1.197	1.918 mg/kg	0.000192 %	✓	
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				18 mg/kg	1.32	21.152 mg/kg	0.00212 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
3	barium { barium sulphide }				170 mg/kg	1.233	186.628 mg/kg	0.0187 %	✓	
	016-002-00-X	244-214-4	21109-95-5							
4	boron { diboron trioxide }				0.3 mg/kg	3.22	0.86 mg/kg	0.000086 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
5	cadmium { cadmium oxide }				0.5 mg/kg	1.142	0.508 mg/kg	0.0000508 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				30 mg/kg	1.462	39.024 mg/kg	0.0039 %	✓	
		215-160-9	1308-38-9							
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
8	copper { dicopper oxide; copper (I) oxide }				31 mg/kg	1.126	31.063 mg/kg	0.00311 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
9	lead { lead chromate }			1	27 mg/kg	1.56	37.482 mg/kg	0.0024 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
10	mercury { mercury dichloride }				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
11	molybdenum { molybdenum(VI) oxide }				2.5 mg/kg	1.5	3.338 mg/kg	0.000334 %	✓	
	042-001-00-9	215-204-7	1313-27-5							
12	nickel { nickel chromate }				36 mg/kg	2.976	95.36 mg/kg	0.00954 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
13	selenium { nickel selenate }				<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
14	zinc { zinc chromate }				62 mg/kg	2.774	153.077 mg/kg	0.0153 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
15	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene 601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	toluene 601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
19	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				0.2 mg/kg	1.884	0.335 mg/kg	0.0000335 %	✓	
22	pH PH				7.4 pH		7.4 pH	7.4 pH		
23	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthylene 205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	acenaphthene 201-469-6	83-32-9			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	fluorene 201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	phenanthrene 201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	anthracene 204-371-1	120-12-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	fluoranthene 205-912-4	206-44-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	pyrene 204-927-3	129-00-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
39	coronene 205-881-7	191-07-1			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
40	monohydric phenols P1186				0.7 mg/kg		0.623 mg/kg	0.0000623 %	✓	
41	sulfur { sulfur } 016-094-00-1	231-722-6	7704-34-9		2.7 mg/kg		2.403 mg/kg	0.00024 %	✓	
42	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0576 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP02/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 1.7	3	5
2	LOI (loss on ignition)	% 4.2	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.4	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg 0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.047	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg 1.7	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 290	4,000	60,000

Key

User supplied data

Classification of sample: TP03/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name: TP03/0.50/2023-05-30	LoW Code: Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content: 11% (wet weight correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

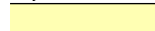



Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	antimony { antimony trioxide }				1.5 mg/kg	1.197	1.598 mg/kg	0.00016 %	✓	
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				15 mg/kg	1.32	17.626 mg/kg	0.00176 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
3	barium { barium sulphide }				66 mg/kg	1.233	72.455 mg/kg	0.00725 %	✓	
	016-002-00-X	244-214-4	21109-95-5							
4	boron { diboron trioxide }				0.4 mg/kg	3.22	1.146 mg/kg	0.000115 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
5	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.305 mg/kg	0.0000305 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				34 mg/kg	1.462	44.227 mg/kg	0.00442 %	✓	
		215-160-9	1308-38-9							
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
8	copper { dicopper oxide; copper (I) oxide }				28 mg/kg	1.126	28.057 mg/kg	0.00281 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
9	lead { lead chromate }			1	18 mg/kg	1.56	24.988 mg/kg	0.0016 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
10	mercury { mercury dichloride }				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
11	molybdenum { molybdenum(VI) oxide }				1 mg/kg	1.5	1.335 mg/kg	0.000134 %	✓	
	042-001-00-9	215-204-7	1313-27-5							
12	nickel { nickel chromate }				45 mg/kg	2.976	119.199 mg/kg	0.0119 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
13	selenium { nickel selenate }				<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
14	zinc { zinc chromate }				54 mg/kg	2.774	133.325 mg/kg	0.0133 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
15	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
18	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
19	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
20	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1 mg/kg	1.884	0.168 mg/kg	0.0000168 %	✓	
	006-007-00-5									
22	pH		PH		7.3 pH		7.3 pH	7.3 pH		
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
25	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
26	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
27	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
28	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
29	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
30	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
31	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
32	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
33	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
34	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
35	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
36	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
37	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
38	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
39	coronene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-881-7	191-07-1							
40	monohydric phenols		P1186		0.5 mg/kg		0.445 mg/kg	0.0000445 %	✓	
41	sulfur { sulfur }				2.6 mg/kg		2.314 mg/kg	0.000231 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
42	polychlorobiphenyls; PCB				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0454 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP03/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 1.1	3	5
2	LOI (loss on ignition)	% 3.4	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.3	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.048	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg 1.1	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg 59	500	800
26	TDS (total dissolved solids)	mg/kg 170	4,000	60,000

Key

User supplied data

Classification of sample: TP04/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP04/0.50/2023-05-30	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.5% (wet weight correction)		

Hazard properties

None identified

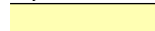



Determinands

Moisture content: 9.5% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	antimony { antimony trioxide }				1.5 mg/kg	1.197	1.625 mg/kg	0.000163 %	✓	
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				13 mg/kg	1.32	15.534 mg/kg	0.00155 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
3	barium { barium sulphide }				76 mg/kg	1.233	84.84 mg/kg	0.00848 %	✓	
	016-002-00-X	244-214-4	21109-95-5							
4	boron { diboron trioxide }				0.3 mg/kg	3.22	0.874 mg/kg	0.0000874 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
5	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.31 mg/kg	0.000031 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				33 mg/kg	1.462	43.649 mg/kg	0.00436 %	✓	
		215-160-9	1308-38-9							
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
8	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	24.454 mg/kg	0.00245 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
9	lead { lead chromate }			1	16 mg/kg	1.56	22.586 mg/kg	0.00145 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
10	mercury { mercury dichloride }				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
11	molybdenum { molybdenum(VI) oxide }				1.3 mg/kg	1.5	1.765 mg/kg	0.000176 %	✓	
	042-001-00-9	215-204-7	1313-27-5							
12	nickel { nickel chromate }				37 mg/kg	2.976	99.66 mg/kg	0.00997 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
13	selenium { nickel selenate }				<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
14	zinc { zinc chromate }				51 mg/kg	2.774	128.041 mg/kg	0.0128 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
15	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
18	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
19	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
20	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %		<LOD
	006-007-00-5									
22	pH		PH		8.1 pH		8.1 pH	8.1 pH		
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
25	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
26	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
27	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
28	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
29	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
30	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
31	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
32	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
33	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
34	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
35	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
36	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
37	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
38	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
39	coronene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-881-7	191-07-1							
40	monohydric phenols		P1186		0.6 mg/kg		0.543 mg/kg	0.0000543 %	✓	
41	sulfur { sulfur }				2.6 mg/kg		2.353 mg/kg	0.000235 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
42	polychlorobiphenyls; PCB				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0434 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP04/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 0.9	3	5
2	LOI (loss on ignition)	% 2.8	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 8.1	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.047	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg 1	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 330	4,000	60,000

Key

User supplied data

Classification of sample: TP05/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP05/0.50/2023-05-30	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
6.6% (wet weight correction)		

Hazard properties

None identified

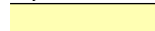



Determinands

Moisture content: 6.6% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				1.8	mg/kg	1.197	2.013	mg/kg	0.000201 %	✓	
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				15	mg/kg	1.32	18.498	mg/kg	0.00185 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	barium { barium sulphide }				54	mg/kg	1.233	62.212	mg/kg	0.00622 %	✓	
	016-002-00-X	244-214-4	21109-95-5									
4	boron { diboron trioxide }				0.2	mg/kg	3.22	0.601	mg/kg	0.0000601 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				0.4	mg/kg	1.142	0.427	mg/kg	0.0000427 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				41	mg/kg	1.462	55.969	mg/kg	0.0056 %	✓	
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				24	mg/kg	1.126	25.238	mg/kg	0.00252 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	13	mg/kg	1.56	18.939	mg/kg	0.00121 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	mercury { mercury dichloride }				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
11	molybdenum { molybdenum(VI) oxide }				1.8	mg/kg	1.5	2.522	mg/kg	0.000252 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
12	nickel { nickel chromate }				47	mg/kg	2.976	130.652	mg/kg	0.0131 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
13	selenium { nickel selenate }				0.9	mg/kg	2.554	2.147	mg/kg	0.000215 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
14	zinc { zinc chromate }				58	mg/kg	2.774	150.281	mg/kg	0.015 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
18	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
19	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
20	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %		<LOD
	006-007-00-5									
22	pH		PH		7.9 pH		7.9 pH	7.9 pH		
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
25	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
26	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
27	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
28	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
29	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
30	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
31	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
32	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
33	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
34	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
35	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
36	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
37	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
38	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
39	coronene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-881-7	191-07-1							
40	monohydric phenols		P1186		0.3 mg/kg		0.28 mg/kg	0.000028 %	✓	
41	sulfur { sulfur }				2.3 mg/kg		2.148 mg/kg	0.000215 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
42	polychlorobiphenyls; PCB				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0479 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP05/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample **PASSES** the Inert (Inert waste landfill) criteria.

The sample **PASSES** the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 0.6	3	5
2	LOI (loss on ignition)	% 2.1	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.9	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.015	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg 1.2	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 180	4,000	60,000

Key

User supplied data

Classification of sample: TP06/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP06/0.50/2023-05-30	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
8.4% (wet weight correction)		

Hazard properties

None identified

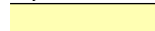



Determinands

Moisture content: 8.4% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				1.6	mg/kg	1.197	1.754	mg/kg	0.000175 %	✓	
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				16	mg/kg	1.32	19.351	mg/kg	0.00194 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	barium { barium sulphide }				69	mg/kg	1.233	77.962	mg/kg	0.0078 %	✓	
	016-002-00-X	244-214-4	21109-95-5									
4	boron { diboron trioxide }				0.4	mg/kg	3.22	1.18	mg/kg	0.000118 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				0.5	mg/kg	1.142	0.523	mg/kg	0.0000523 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				29	mg/kg	1.462	38.825	mg/kg	0.00388 %	✓	
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				26	mg/kg	1.126	26.814	mg/kg	0.00268 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	27	mg/kg	1.56	38.577	mg/kg	0.00247 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	mercury { mercury dichloride }				0.07	mg/kg	1.353	0.0868	mg/kg	0.00000868 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
11	molybdenum { molybdenum(VI) oxide }				1.5	mg/kg	1.5	2.061	mg/kg	0.000206 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
12	nickel { nickel chromate }				34	mg/kg	2.976	92.693	mg/kg	0.00927 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
13	selenium { nickel selenate }				<0.5	mg/kg	2.554	<1.277	mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
14	zinc { zinc chromate }				54	mg/kg	2.774	137.22	mg/kg	0.0137 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
18	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
19	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
20	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.2 mg/kg	1.884	0.345 mg/kg	0.0000345 %	✓	
	006-007-00-5									
22	pH		PH		7.4 pH		7.4 pH	7.4 pH		
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
25	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
26	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
27	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
28	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
29	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
30	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
31	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
32	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
33	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
34	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
35	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
36	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
37	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
38	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
39	coronene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-881-7	191-07-1							
40	monohydric phenols		P1186		0.7 mg/kg		0.641 mg/kg	0.0000641 %	✓	
41	sulfur { sulfur }				2.7 mg/kg		2.473 mg/kg	0.000247 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
42	polychlorobiphenyls; PCB				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0442 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP06/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample **PASSES** the Inert (Inert waste landfill) criteria.

The sample **PASSES** the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 1.9	3	5
2	LOI (loss on ignition)	% 4.3	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.4	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.049	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg <0.1	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 230	4,000	60,000

Key

User supplied data

Classification of sample: ST01/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
ST01/0.50/2023-05-30	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
9.9%	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(wet weight correction)	

Hazard properties

None identified

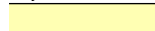



Determinands

Moisture content: 9.9% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				1.3	mg/kg	1.197	1.402	mg/kg	0.00014 %	✓	
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				21	mg/kg	1.32	24.982	mg/kg	0.0025 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	barium { barium sulphide }				60	mg/kg	1.233	66.683	mg/kg	0.00667 %	✓	
	016-002-00-X	244-214-4	21109-95-5									
4	boron { diboron trioxide }				<0.2	mg/kg	3.22	<0.644	mg/kg	<0.0000644 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				0.4	mg/kg	1.142	0.412	mg/kg	0.0000412 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				<0.15	mg/kg	1.462	<0.219	mg/kg	<0.0000219 %		<LOD
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				30	mg/kg	2.27	61.358	mg/kg	0.00614 %	✓	
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	22.317	mg/kg	0.00223 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	18	mg/kg	1.56	25.297	mg/kg	0.00162 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	mercury { mercury dichloride }				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
11	molybdenum { molybdenum(VI) oxide }				1.7	mg/kg	1.5	2.298	mg/kg	0.00023 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
12	nickel { nickel chromate }				31	mg/kg	2.976	83.13	mg/kg	0.00831 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
13	selenium { nickel selenate }				<0.5	mg/kg	2.554	<1.277	mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
14	zinc { zinc chromate }				60	mg/kg	2.774	149.97	mg/kg	0.015 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene 601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	toluene 601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
19	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				0.1 mg/kg	1.884	0.17 mg/kg	0.000017 %	✓	
22	pH PH				7.7 pH		7.7 pH	7.7 pH		
23	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthylene 205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	acenaphthene 201-469-6	83-32-9			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	fluorene 201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	phenanthrene 201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	anthracene 204-371-1	120-12-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	fluoranthene 205-912-4	206-44-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	pyrene 204-927-3	129-00-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
39	coronene 205-881-7	191-07-1			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
40	monohydric phenols P1186				0.4 mg/kg		0.36 mg/kg	0.000036 %	✓	
41	sulfur { sulfur } 016-094-00-1	231-722-6	7704-34-9		2.5 mg/kg		2.253 mg/kg	0.000225 %	✓	
42	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0446 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: ST01/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 1.3	3	5
2	LOI (loss on ignition)	% 3.2	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.7	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg 0.021	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.17	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg 4.2	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 290	4,000	60,000

Key

User supplied data

Classification of sample: ST02/0.50/2023-05-30

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
ST02/0.50/2023-05-30	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
12% (wet weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

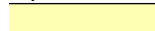



Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				1.5	mg/kg	1.197	1.58	mg/kg	0.000158 %	✓	
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				16	mg/kg	1.32	18.59	mg/kg	0.00186 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	barium { barium sulphide }				78	mg/kg	1.233	84.667	mg/kg	0.00847 %	✓	
	016-002-00-X	244-214-4	21109-95-5									
4	boron { diboron trioxide }				0.4	mg/kg	3.22	1.133	mg/kg	0.000113 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				0.5	mg/kg	1.142	0.503	mg/kg	0.0000503 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				30	mg/kg	1.462	38.585	mg/kg	0.00386 %	✓	
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				34	mg/kg	1.126	33.687	mg/kg	0.00337 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	42	mg/kg	1.56	57.651	mg/kg	0.0037 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	mercury { mercury dichloride }				0.1	mg/kg	1.353	0.119	mg/kg	0.0000119 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
11	molybdenum { molybdenum(VI) oxide }				1.4	mg/kg	1.5	1.848	mg/kg	0.000185 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
12	nickel { nickel chromate }				32	mg/kg	2.976	83.812	mg/kg	0.00838 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
13	selenium { nickel selenate }				<0.5	mg/kg	2.554	<1.277	mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
14	zinc { zinc chromate }				62	mg/kg	2.774	151.357	mg/kg	0.0151 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene 601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	toluene 601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
19	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				0.1 mg/kg	1.884	0.166 mg/kg	0.0000166 %	✓	
22	pH PH				7.9 pH		7.9 pH	7.9 pH		
23	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthylene 205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	acenaphthene 201-469-6	83-32-9			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	fluorene 201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	phenanthrene 201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	anthracene 204-371-1	120-12-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	fluoranthene 205-912-4	206-44-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	pyrene 204-927-3	129-00-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
39	coronene 205-881-7	191-07-1			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
40	monohydric phenols P1186				0.7 mg/kg		0.616 mg/kg	0.0000616 %	✓	
41	sulfur { sulfur } 016-094-00-1	231-722-6	7704-34-9		2.9 mg/kg		2.552 mg/kg	0.000255 %	✓	
42	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0471 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: ST02/0.50/2023-05-30

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 1.7	3	5
2	LOI (loss on ignition)	% 3.9	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.9	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.029	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg 1.4	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 370	4,000	60,000

Key

User supplied data

Classification of sample: BH01/0.50/2023-06-01

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH01/0.50/2023-06-01	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.2% (wet weight correction)		

Hazard properties

None identified

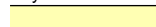



Determinands

Moisture content: 9.2% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	antimony { antimony trioxide }				1.6 mg/kg	1.197	1.739 mg/kg	0.000174 %	✓	
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				16 mg/kg	1.32	19.182 mg/kg	0.00192 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
3	barium { barium sulphide }				62 mg/kg	1.233	69.441 mg/kg	0.00694 %	✓	
	016-002-00-X	244-214-4	21109-95-5							
4	boron { diboron trioxide }				0.3 mg/kg	3.22	0.877 mg/kg	0.0000877 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
5	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.311 mg/kg	0.0000311 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				32 mg/kg	1.462	42.467 mg/kg	0.00425 %	✓	
		215-160-9	1308-38-9							
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
8	copper { dicopper oxide; copper (I) oxide }				29 mg/kg	1.126	29.647 mg/kg	0.00296 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
9	lead { lead chromate }			1	19 mg/kg	1.56	26.91 mg/kg	0.00173 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
10	mercury { mercury dichloride }				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
11	molybdenum { molybdenum(VI) oxide }				2.2 mg/kg	1.5	2.997 mg/kg	0.0003 %	✓	
	042-001-00-9	215-204-7	1313-27-5							
12	nickel { nickel chromate }				40 mg/kg	2.976	108.098 mg/kg	0.0108 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
13	selenium { nickel selenate }				<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
14	zinc { zinc chromate }				60 mg/kg	2.774	151.136 mg/kg	0.0151 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
15	TPH (C6 to C40) petroleum group				12.14 mg/kg		11.023 mg/kg	0.0011 %	✓	
			TPH							
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
18	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
19	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
20	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1 mg/kg	1.884	0.171 mg/kg	0.0000171 %	✓	
	006-007-00-5									
22	pH		PH		8 pH		8 pH	8pH		
23	naphthalene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
	601-052-00-2	202-049-5	91-20-3							
24	acenaphthylene				0.1 mg/kg		0.0908 mg/kg	0.00000908 %	✓	
		205-917-1	208-96-8							
25	acenaphthene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
		201-469-6	83-32-9							
26	fluorene				0.1 mg/kg		0.0908 mg/kg	0.00000908 %	✓	
		201-695-5	86-73-7							
27	phenanthrene				0.1 mg/kg		0.0908 mg/kg	0.00000908 %	✓	
		201-581-5	85-01-8							
28	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
29	fluoranthene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
		205-912-4	206-44-0							
30	pyrene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
		204-927-3	129-00-0							
31	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
32	chrysene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
	601-048-00-0	205-923-4	218-01-9							
33	benzo[b]fluoranthene				0.3 mg/kg		0.272 mg/kg	0.0000272 %	✓	
	601-034-00-4	205-911-9	205-99-2							
34	benzo[k]fluoranthene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
	601-036-00-5	205-916-6	207-08-9							
35	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
36	indeno[123-cd]pyrene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
		205-893-2	193-39-5							
37	dibenz[a,h]anthracene				0.3 mg/kg		0.272 mg/kg	0.0000272 %	✓	
	601-041-00-2	200-181-8	53-70-3							
38	benzo[ghi]perylene				0.2 mg/kg		0.182 mg/kg	0.0000182 %	✓	
		205-883-8	191-24-2							
39	coronene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-881-7	191-07-1							
40	monohydric phenols		P1186		0.7 mg/kg		0.636 mg/kg	0.0000636 %	✓	
41	sulfur { sulfur }				<0.75 mg/kg		<0.75 mg/kg	<0.000075 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
42	polychlorobiphenyls; PCB				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0462 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because **No free product present in samples**

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0011%)

WAC results for sample: BH01/0.50/2023-06-01

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 1.1	3	5
2	LOI (loss on ignition)	% 3	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg 2.6	100	-
7	pH	pH 8	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.04	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg <0.1	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 280	4,000	60,000

Key

User supplied data

Classification of sample: BH02/0.50/2023-06-01

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH02/0.50/2023-06-01	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
8% (wet weight correction)		

Hazard properties

None identified

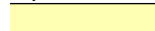



Determinands

Moisture content: 8% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	antimony { antimony trioxide }				1.6 mg/kg	1.197	1.762 mg/kg	0.000176 %	✓	
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				21 mg/kg	1.32	25.509 mg/kg	0.00255 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
3	barium { barium sulphide }				58 mg/kg	1.233	65.819 mg/kg	0.00658 %	✓	
	016-002-00-X	244-214-4	21109-95-5							
4	boron { diboron trioxide }				<0.2 mg/kg	3.22	<0.644 mg/kg	<0.0000644 %		<LOD
	005-008-00-8	215-125-8	1303-86-2							
5	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.315 mg/kg	0.0000315 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				36 mg/kg	1.462	48.407 mg/kg	0.00484 %	✓	
		215-160-9	1308-38-9							
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
8	copper { dicopper oxide; copper (I) oxide }				28 mg/kg	1.126	29.003 mg/kg	0.0029 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
9	lead { lead chromate }			1	11 mg/kg	1.56	15.785 mg/kg	0.00101 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
10	mercury { mercury dichloride }				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
11	molybdenum { molybdenum(VI) oxide }				1.1 mg/kg	1.5	1.518 mg/kg	0.000152 %	✓	
	042-001-00-9	215-204-7	1313-27-5							
12	nickel { nickel chromate }				51 mg/kg	2.976	139.646 mg/kg	0.014 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
13	selenium { nickel selenate }				<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
14	zinc { zinc chromate }				56 mg/kg	2.774	142.924 mg/kg	0.0143 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
15	TPH (C6 to C40) petroleum group				80.68 mg/kg		74.226 mg/kg	0.00742 %	✓	
			TPH							
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
18	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
19	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
20	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %		<LOD
	006-007-00-5									
22	pH		PH		7.9 pH		7.9 pH	7.9 pH		
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
25	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
26	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
27	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
28	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
29	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
30	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
31	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
32	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
33	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
34	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
35	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
36	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
37	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
38	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
39	coronene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-881-7	191-07-1							
40	monohydric phenols		P1186		0.3 mg/kg		0.276 mg/kg	0.0000276 %	✓	
41	sulfur { sulfur }				<0.75 mg/kg		<0.75 mg/kg	<0.000075 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
42	polychlorobiphenyls; PCB				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0546 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because **No free product present in samples**

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00742%)

WAC results for sample: BH02/0.50/2023-06-01

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	<0.5	3
2	LOI (loss on ignition)	%	2.2	5
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.01	-
5	Mineral oil (C10 to C40)	mg/kg	<10	6
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<1.6	1
7	pH	pH	7.9	500
8	ANC (acid neutralisation capacity)	mol/kg	<1	100
Eluate Analysis 10:1				
9	arsenic	mg/kg	<0.01	-
10	barium	mg/kg	<0.1	>6
11	cadmium	mg/kg	<0.02	-
12	chromium	mg/kg	<0.1	-
13	copper	mg/kg	<0.02	-
14	mercury	mg/kg	<0.002	-
15	molybdenum	mg/kg	<0.1	-
16	nickel	mg/kg	<0.1	-
17	lead	mg/kg	<0.05	-
18	antimony	mg/kg	<0.05	-
19	selenium	mg/kg	<0.03	-
20	zinc	mg/kg	0.023	-
21	chloride	mg/kg	<100	-
22	fluoride	mg/kg	<0.1	-
23	sulphate	mg/kg	<100	-
24	phenol index	mg/kg	<1	-
25	DOC (dissolved organic carbon)	mg/kg	<50	-
26	TDS (total dissolved solids)	mg/kg	150	-

Key

User supplied data

Classification of sample: BH03/0.50/2023-06-01

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH03/0.50/2023-06-01	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.1% (wet weight correction)		

Hazard properties

None identified

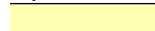



Determinands

Moisture content: 9.1% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				1.6	mg/kg	1.197	1.741	mg/kg	0.000174 %	✓	
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				16	mg/kg	1.32	19.203	mg/kg	0.00192 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	barium { barium sulphide }				66	mg/kg	1.233	74.002	mg/kg	0.0074 %	✓	
	016-002-00-X	244-214-4	21109-95-5									
4	boron { diboron trioxide }				0.4	mg/kg	3.22	1.171	mg/kg	0.000117 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				0.3	mg/kg	1.142	0.312	mg/kg	0.0000312 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				31	mg/kg	1.462	41.185	mg/kg	0.00412 %	✓	
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				25	mg/kg	1.126	25.586	mg/kg	0.00256 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	20	mg/kg	1.56	28.357	mg/kg	0.00182 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	mercury { mercury dichloride }				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
11	molybdenum { molybdenum(VI) oxide }				1.1	mg/kg	1.5	1.5	mg/kg	0.00015 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
12	nickel { nickel chromate }				37	mg/kg	2.976	100.101	mg/kg	0.01 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
13	selenium { nickel selenate }				<0.5	mg/kg	2.554	<1.277	mg/kg	<0.000128 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
14	zinc { zinc chromate }				57	mg/kg	2.774	143.737	mg/kg	0.0144 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
15	TPH (C6 to C40) petroleum group				10.83	mg/kg		9.844	mg/kg	0.000984 %	✓	
			TPH									
16	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
18	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
19	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
20	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
21	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1 mg/kg	1.884	0.171 mg/kg	0.0000171 %	✓	
	006-007-00-5									
22	pH		PH		7.7 pH		7.7 pH	7.7 pH		
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
25	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
26	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
27	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
28	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
29	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
30	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
31	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
32	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
33	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
34	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
35	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
36	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
37	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
38	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
39	coronene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-881-7	191-07-1							
40	monohydric phenols		P1186		0.8 mg/kg		0.727 mg/kg	0.0000727 %	✓	
41	sulfur { sulfur }				<0.75 mg/kg		<0.75 mg/kg	<0.000075 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
42	polychlorobiphenyls; PCB				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0444 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because **No free product present in samples**

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00098%)

WAC results for sample: BH03/0.50/2023-06-01

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis			Landfill Waste Acceptance Criteria Limits	
#	Determinand	User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	% 1.2	3	5
2	LOI (loss on ignition)	% 3.4	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg <0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg <0.01	1	-
5	Mineral oil (C10 to C40)	mg/kg <10	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg <1.6	100	-
7	pH	pH 7.7	-	>6
8	ANC (acid neutralisation capacity)	mol/kg <1	-	-
Eluate Analysis 10:1				
9	arsenic	mg/kg <0.01	0.5	2
10	barium	mg/kg <0.1	20	100
11	cadmium	mg/kg <0.02	0.04	1
12	chromium	mg/kg <0.1	0.5	10
13	copper	mg/kg <0.02	2	50
14	mercury	mg/kg <0.002	0.01	0.2
15	molybdenum	mg/kg <0.1	0.5	10
16	nickel	mg/kg <0.1	0.4	10
17	lead	mg/kg <0.05	0.5	10
18	antimony	mg/kg <0.05	0.06	0.7
19	selenium	mg/kg <0.03	0.1	0.5
20	zinc	mg/kg 0.069	4	50
21	chloride	mg/kg <100	800	15,000
22	fluoride	mg/kg 1.4	10	150
23	sulphate	mg/kg <100	1,000	20,000
24	phenol index	mg/kg <1	1	-
25	DOC (dissolved organic carbon)	mg/kg <50	500	800
26	TDS (total dissolved solids)	mg/kg 180	4,000	60,000

Key

User supplied data

Appendix A: Classifier defined and non EU CLP determinands

• **barium sulphide** (EC Number: 244-214-4, CAS Number: 21109-95-5)

EU CLP index number: 016-002-00-X

Description/Comments:

Additional Hazard Statement(s): EUH031 >= 0.8 %

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH031 >= 0.8 % hazard statement sourced from: WM3, Table C12.2

• **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

• **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

EU CLP index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

• **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

EU CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

• **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

• **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

▪ **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

▪ **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

▪ **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.

Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en>

Data source date: 16 Jun 2014

Hazard Statements: STOT SE 2; H371

▪ **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)

Data source: CLP combined data

Data source date: 26 Mar 2019

Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 £ conc. < 3 % , Eye Irrit. 2; H319 1 £ conc. < 3 % , Aquatic Chronic 2; H411

▪ **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

EU CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Additional Hazard Statement(s): Carc. 1A; H350

Reason for additional Hazard(s) Statement(s):

29 Sep 2015 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds

barium {barium sulphide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide]

sulfur {sulfur}

chemtest reports Elemental sulfur using this CAS

Appendix C: Version

HazWasteOnline Classification Engine: EU WM3 1st Edition v1.1.NI using the EU LoW
 HazWasteOnline Classification Engine Version: 2023.172.5634.10384 (21 Jun 2023)
 HazWasteOnline Database: 2023.172.5634.10384 (21 Jun 2023)

This classification utilises the following guidance and legislation:

WM3 v1.1.NI - Waste Classification - 1st Edition v1.1.NI - Jan 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

17th ATP - Regulation (EU) 2021/849 of 11 March 2021

18th ATP - Regulation (EU) 2022/692 of 16 February 2022