

**AIRTON ROAD
DEVELOPMENT
FOR
AIRTON ROAD PROPERTIES**

**B.M.C.E.
CONSULTING ENGINEERS**

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FOREWORD

The following Conditions and Notes on Site Investigation Procedures should be read in conjunction with this report.

General.

Recommendations made, and opinions expressed in the report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held for conditions which have not been revealed by exploratory work, or which occur between exploratory hole locations. Whilst the report may suggest the likely configuration of strata, both between exploratory hole locations, or below the maximum depth of the investigation, this is only indicative, and liability cannot be accepted for its accuracy.

Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction below or close to the site.

Standards

The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930 (1999), BS 1377 (Parts 1 to 9) and Engineers Ireland Specification & Related Documents for Ground Investigation in Ireland (2006). The following Irish (IS) and European Standards or Norms are referenced:

- IS EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- IS EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- IS EN ISO 14688-1:2002 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- IS EN ISO 14688-2:2004 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles

Routine Sampling.

Undisturbed samples of soils, predominantly cohesive in nature are obtained unless otherwise stated by a 104mm diameter open-drive tube sampler or Piston Sampler. In granular soils, and where undisturbed sampling is inappropriate, disturbed samples are collected. Smaller disturbed samples are also recovered at intervals to allow a visual examination of the full strata section.

In-Situ Testing.

Standard penetration tests were conducted strictly in accordance with Section 4.6 of IS EN 1997-2:2007. The SPT equipment (hammer energy test) has been calibrated in accordance with EN ISO 22476-3:2005 to obtain the Energy Ratio (E_r) of each hammer. A calibration certificate is available upon request. The E_r is defined as the ratio of the actual energy E_{meas} (measured energy during calibration) delivered to the drive weight assembly into the drive rod below the anvil, to the theoretical energy (E_{theor}) as calculated from the drive weight assembly. The recorded number of blows (N) reported on the engineering logs are uncorrected. In sands, the energy losses due to rod length and the effect of the overburden pressure should be taken into account (see IS EN ISO 22476-3:2005).

Groundwater

The depth of entry of any influx of groundwater is recorded during the course of boring operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level. Groundwater conditions observed in the borings or pits are those appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

Engineering Logging

Soil and rock identification has been based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2002 and IS EN ISO 14689-1:2004.

Where peat has been encountered during site works, samples have been logged in accordance with the Von Post Classification (ref. Von Post, L. 1992. Sveriges Gologiska Undersoknings torvinventering och nogra av dess hittils vunna resultat (SGU peat inventory and some preliminary results) Svenska Mosskulturforeningens Tidskrift, Jonkoping, Swedden, 36, 1-37 & Hobbs N. B. Mire morphology and the properties of some British and foreign peats. QJEG, Vol. 19, 1986).

Retention of Samples.

After satisfactory completion of all the scheduled laboratory tests on any sample, the remaining material is discarded unless a period of retention of samples is agreed, it is our normal practice to discard all soil samples one month after submission of our final report.

Reporting

Recommendations made and opinions expressed in this report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held by IGSL Ltd for ground conditions between exploratory hole locations.

The engineering logs provide ground profiles and configuration of strata relevant to the investigation depths achieved and caution should be taken when extrapolating between exploratory points. No liability is accepted for ground conditions extraneous to the investigation points. Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction, mining works or karstification below or close to the site.

This report has been prepared for the project client and the information should not be used without prior written permission. Any recommendations developed in this report specifically relate to the proposed development. IGSL Ltd accepts no responsibility or liability for this document being used other than for the purposes for which it was intended.

**REPORT ON A SITE INVESTIGATION
FOR A DEVELOPMENT
AT AIRTON ROAD TALLAGHT**

**FOR
AIRTON ROAD PROPERTIES LTD**

**BARRETT MAHONY CONSULTING ENGINEERS
(BMCE)**

Report No. 21813

JULY 2019

I Introduction

A new commercial development is proposed for a brownfield site located off Airton Road in Tallaght. A large disused commercial building occupies much of the site.

An investigation of sub soil conditions in the area of the development has been carried out by IGSL for Barrett Mahony Consulting Engineers on behalf of Airton Road Properties Ltd.

This work was carried out by IGSL Ltd. following a competitive tender process.

The site investigation included the following elements:

- * Boreholes 7 nr.
- * Rotary Core Drilling 7 nr.
- Trial Pit Excavations 9 nr.
- CBR by Plate Test 7 nr.
- BRE Digest 365 Percolation 3 nr.
- Geotechnical Laboratory Testing
- Environmental Laboratory Testing

This report includes all factual data from field operations and soils laboratory and discusses these findings relative to the proposed new development.

II Fieldwork

The site and the exploratory locations are noted on the drawing enclosed in Appendix VII. This drawing was provided by BMCE.

The site is located off the Airton Road in Tallaght. The area contains a large disused building with surrounding surfaces of concrete, hardcore and grass.

The various elements of the investigation are detailed in the following paragraphs. All field works were supervised by an experienced geotechnical engineer who carefully recorded stratification, recovered samples as required and prepared detailed records.

Each location was scanned electronically (CAT) to ensure that existing services were not damaged. At borehole locations a 1.00 metre deep inspection pit was opened by hand to confirm the absence of services. All locations have been referenced to National Grid and OD levels have been determined.

Boreholes

Seven exploratory holes were bored with conventional 200mm cable-tool methods using a Dando Exploratory Rig. Locations were referenced as per the original drawing. One re-bore was taken following shallow refusal on obstruction in BH02.

Detailed geotechnical records are contained in Appendix I to this report - the records give details of stratification, sampling, in-situ testing and groundwater. Note is also taken of any obstructions to normal boring requiring the use of the heavy chisel for advancement. In general it was not possible to recover undisturbed samples because of the high stone/cobble content of the strata encountered.

The findings are relatively consistent. Surface Concrete and Hardcore overlies some generally firm CLAY FILL. The fill extends generally to approximately 1.00 to 1.50 metres, but in three locations to an average depth of 2.80 metres.

Below these upper zones very stiff to hard GLACIAL TILL or BOULDER CLAY is encountered. This comprises stiff BROWN BOULDER CLAY which extends to depth ranging from 1.90 to 2.90 metres. Very stiff to hard BLACK BOULDER CLAY forms the base stratum and all seven boreholes were terminated in this stratum when further advancement was not possible despite the use of the heavy chisel.

Final borehole refusal depths ranged from 5.90 to 8.30 metres, with boulder obstruction noted at each location.

Ground water was encountered as light seepage in several of the boreholes, probably indicative of some granular zones within the generally cohesive boulder clays.

Rotary Core Drilling

Rotary drilling was scheduled at each location to advance the borehole depths and establish bedrock horizon if practical.

A tracked GEO305 rig was mobilised to drill 90 mm diameter boreholes with 78mm diameter core recovered if possible using triple tube diamond drilling technique.

Detailed drilling records are presented in Appendix II, noting stratification, core recovery and in-situ test data.

The exploratory drill holes penetrated to depths ranging from 12.00 to 13.70 metres BGL. Limestone bedrock was not identified within this depth range.

Recovery of core was generally impractical, however some core of the hard black boulder clay was possible at RC01 and RC05.

The overburden stratum is variously described as very stiff to hard brown and black very gravelly CLAY with cobbles and boulders grading in places to more granular material described as silt or clay-bound sandy GRAVEL.

Standard penetration tests were carried out at intervals in each rotary hole to establish in-situ soil strength. N values are noted in the RH column of the individual records.

Monitoring standpipes were installed in three locations (RC01, RC06 and RC07) to facilitate long term ground water and possible landfill gas concentrations. Each installation was protected by a steel cover. Readings have been taken in the period following the site works. Results are presented with the drilling data in Appendix II.

Trial Pits

Pits were excavated at nine locations under experienced engineering supervision. Each location was electronically scanned (CAT) to ensure that underground services were not damaged. Detailed trial pit logs are enclosed in Appendix III.

The records confirm the borehole findings. Surface FILL extends to up to 0.90 metres. Firm to stiff brown BOULDER CLAY is then encountered and penetrated to depths ranging from 2.10 to 2.90 metres. Hard black BOULDER CLAY was noted at the base of each excavation with excavator refusal on very hard black clay / boulders generally at 2.80 to 3.00 metres BGL.

Four of the trial excavations were dry, however, some minor water ingress was recorded at varying depth in TPs.01, 02, 04, 08 and 09. All trial excavations were recorded as stable during the short-term investigation period.

In Situ CBR by Plate Bearing Test

The CBR value of the soils at shallow depth was established at seven trial pit locations using Plate Bearing Test Apparatus.

A steel plate is loaded and off-loaded incrementally over two stages and the deflection under load and recovery under off-load is measured by a system of dial gauges. The data is processed and load settlement graphs are prepared. An equivalent CBR value is calculated in accordance with NRA HD25-26/10.

Results are summarised in the following table and details are presented in Appendix IV

TABLE A

| Test No. | Depth | CBR at Load Cycle (%) | CBR @ Re-Load (%) |
|-----------------|--------------|------------------------------|--------------------------|
| PBT 1 | 0.50 | 12.2 | 55.5 |
| PBT 2 | 0.50 | 14.5 | 106.4 |
| PBT 3 | 0.50 | 6.2 | 21.2 |
| PBT 4 | 0.50 | 6.1 | 37.3 |
| PBT 5 | 0.50 | 3.7 | 23.6 |
| PBT 6 | 0.50 | 26.7 | N/A |
| PBT 7 | 0.50 | 9.6 | 50.2 |

Percolation Tests (BRE Digest 365)

Infiltration testing was performed at three locations in accordance with BRE Digest 365 'Soakaway Design'. Details are presented in Appendix V. The Test Pits were opened to approximately 2.00 metres deep in gravelly boulder CLAY and detailed logs were prepared.

To obtain a measure of the infiltration rate of the sub-soils, water is poured into the test pit, and records taken of the fall in water level against time. The test is carried out over two cycles following initial soakage.

The infiltration rate is the volume of water dispersed per unit exposed area per unit of time, and is generally expressed as metres/minute or metres/second. In these calculations the exposed area is the sum of the base area and the average internal area of the pit sides over the test duration.

Designs are based on the slowest infiltration rate, which is generally calculated from the final cycle. In each location no fall in water level was measured over the test period and the results confirm the very low permeability of the glacial till or boulder clay.

III. Testing

(a) In-Situ

Standard penetration tests were carried out in the boreholes at 1.00 metre intervals to establish relative soil strength. In addition SPT values were also established at intervals during rotary drilling. Results are presented in the right hand column of the boring and drilling records and are summarised as follows in Table B.

TABLE B

| Stratum / Depth | N Value Range | Comment |
|---------------------------|----------------------|------------------------|
| FILL DEPOSITS | 3 to 25 | Variable soft to stiff |
| BROWN BOULDER CLAY | | |
| 1.00 metres BGL | 18 to 24 | Stiff |
| 2.00 metres BGL | 21 to 44 | Stiff to Very Stiff |
| BLACK BOULDER CLAY | | |
| 3.00 metres BGL | 28 to 55 | Stiff to Hard |
| 4.00 metres BGL | 44 to 64 | Hard |
| 5.00 metres BGL | 42 to 56 | Hard |
| > 5.00 metres BGL | 40 to 60 | Hard |

Refusal of SPT apparatus was recorded on numerous boulders throughout and at the base of the respective boreholes.

(b) Laboratory

A programme of laboratory testing was scheduled following completion of site operations. Geotechnical soil testing was carried out by IGSL in it's INAB-Accredited laboratory. Chemical and Environmental testing was carried out in the UK by specialist laboratory. All test results are presented in Appendices VIa and VIb. The test programme includes the following elements:

- Liquid and Plastic Limits / Moisture Content
- PSD Grading by wet sieve and hydrometer.
- Sulphate and pH
- RILTA Environmental Suite

Individual test results are discussed in the following paragraphs.

Classification

Thirteen samples from the boreholes and trial pits had index properties established. Results consistently fall into Zones CL and CI of the standard Classification, indicative of low plasticity sensitive clay matrix soils.

Two samples have been classified as clay-bound sandy GRAVEL. Moisture content for the clay samples range from 8% to 18% while for the gravel samples moisture contents of 3.9 and 8.1% were established.

Grading

Wet sieve analysis and hydrometer was used to establish PSD grading curves for samples of the boulder clay. The graphs reflect material graded from the clay to gravel fraction, the straight line pattern of the graphs is typical of the local boulder clays.

Two graphs from the more granular soils confirm coarser grading in the sand gravel fraction with up to 18% of material passing to the fine silt/clay fraction.

Sulphate and pH.

Three soil samples were selected for sulphate and pH analysis. Sulphate concentrations (SO₄ 2:1 extract) of from < 0.010 g/l to 0.076 g/l were established with pH values from 7.6 to 8.6. No special precautions are necessary to protect foundation concrete from sulphate aggression. A sulphate design class of DS-1 (ACEC Classification for Concrete) is indicated for concentrations less than 0.5 g/l.

RILTA Environmental

Twenty-five soil samples were submitted for detailed environmental analysis to RILTA (WAC) parameters. The results confirm that the soils can be classified as INERT with no elevated contaminant levels recorded on any of the samples submitted. Results indicate that material excavated from this site can be readily disposed of either on-site or to a licensed landfill facility.

No asbestos traces were found during routine screening.

IV. Discussion:

The new development is to be carried out on a Brownfield site located at Airton Road in Tallaght.

A comprehensive site investigation has been carried out for BMCE and Airton Road Properties Ltd. to establish design parameters for new structures and confirm that the sub soils are not contaminated.

Summary Stratification

The findings reflect the general stratification of the Airton Road / Tallaght area where GLACIAL TLL deposits are encountered below superficial surface soils comprising FILL / OLD TOPSOIL / RECENT SANDY CLAY OR SILT.

The glacial till comprises firm to stiff brown sandy gravelly CLAY (Brown Boulder Clay) overlying at an approximate depth of 2.00 metres very stiff to hard black silty gravelly CLAY (Black Boulder Clay or Lodgement Till)

Exploratory holes have been formed using both cable percussion and rotary drilling to depths in excess of 15.00 metres. Bedrock was not encountered within this depth zone.

Pockets or more extensive zones of GRAVEL can typically and randomly occur within the cohesive boulder clay deposits. These are generally water bearing.

Variation in the general grading pattern of the till can also occur, with a higher granular content and increased moisture content classifying the material as either clay or silt bound sandy GRAVEL.

Foundations

The made ground encountered over the site area is variable in both composition and compaction and no information is available as to it's origin and method of placement.

This material is therefore regarded as unsuitable as a founding medium and structural loads should be transferred to the competent underling boulder clays.

The following table outlines the allowable bearing pressures available in the various strata at various depths BGL based on in-situ test results, visual assessment of soils during trial pit excavation and consideration of the geotechnical laboratory data.

The characteristics of the local boulder clays are well documented in numerous publications. These have also been considered in preparing this report.

TABLE C

| Stratum | Depth | Allowable Bearing Pressure |
|--------------------|--------------|-----------------------------------|
| FILL | GL to 2.00 | Not Suitable |
| Brown Boulder CLAY | 1.00 m | 200 KPa |
| | 2.00 m | 250 KPa |
| Black Boulder CLAY | 2.00 m | 250 KPa |
| | 3.00 m | 300 KPa |
| | 4.00 m + | 400 Kpa |

Settlement in the glacial till under the above loads will be less than 10mm in the brown boulder clay and less than 5mm in the black lodgement till.

Conventional reinforced strip or pad foundations are therefore recommended for this development. If basements are proposed the black lodgement till below 2.00 metres will be the obvious founding medium with allowable bearing pressures probably exceeding design requirements.

Significant ground water ingress during shallow foundation construction is not expected. Should isolated seepages occur they will be readily controlled using light pumping from local sumps.

Installed standpipes indicate that the final standing ground water level is approximately 1.20 metres BGL. This will be significant if basement construction is envisaged.

Visual inspection of all foundation excavation is strongly recommended to ensure uniformity and suitability of the founding medium. Any soft or suspect material should be removed and replaced with low-grade concrete.

Excavation

Trial Pit excavations were quite stable and foundation or trench excavations should remain stable during the construction period.

Statutory safety regulations should however be observed. These prohibit personnel entering unsupported excavations greater than 1.20 metres deep, irrespective of apparent stability.

The very high strength of the black boulder clay and presence of boulders may present excavation difficulties. Experienced local contractors will be well acquainted with excavation in this material and plant requirements for the purpose.

Ground Water / Gas

Ground water and gas levels were monitored in the three installed standpipes over two site visits after completion of works. Full details are presented in Appendix II.

Water levels ranged from 3.25 to 4.40 metres BGL on the initial visit with levels rising to 2.30 to 3.80 metres BGL one month after completion of drilling. A final standing water table of 1.50 to 2.00 metres BGL can be expected and would be typical of the local boulder clay deposits.

Landfill gas concentrations were also established at both site visits. Levels for CH₄, CO₂, O₂, CO and H₂S were negligible and no issues relating to gas generation arise.

Roads

CBR values have been established at seven locations over the site area. Tests were carried out on generally granular material (FILL) at a depth of 0.50 metres.

High values were established with an average CBR in excess of 10% indicating suitability for road or car park construction.

We would recommend careful visual inspection of excavated formation to ensure that all top soil and organic peaty soils is removed.

Percolation (BRE Digest 365)

Three percolation tests carried out in the gravelly boulder clay all recorded refusal. The results are typical of the highly impermeable soils of the greater Dublin area.

Disposal of storm or surface water to the local authority system or to a suitable watercourse should be considered.

Concrete

Low sulphate content and near neutral pH values confirm that no special precautions are required for protection of foundation concrete.

Environmental

Comprehensive RILTA Suite (WAC) testing confirms that the made ground and sub soil is INERT and no issues arise as to safety of personnel on site or disposal of excavated material either on or off site.

IGSL/JC
July 2019

Appendix I Boring Records



GEOTECHNICAL BORING RECORD

REPORT NUMBER
21813

| | | | |
|---|--|-----------------------------------|----------------------------------|
| CONTRACT Airton Road, Tallaght | | BOREHOLE NO. BH01 | |
| CO-ORDINATES | | SHEET Sheet 1 of 1 | |
| GROUND LEVEL (m AOD) | | RIG TYPE Dando 2000 | DATE COMMENCED 27/05/2019 |
| | | BOREHOLE DIAMETER (mm) 200 | DATE COMPLETED 27/05/2019 |
| | | BOREHOLE DEPTH (m) 5.70 | |
| CLIENT Airton Road Properties Ltd. | | SPT HAMMER REF. NO. | |
| ENGINEER Barrett Mahony CE | | ENERGY RATIO (%) | |
| | | BORED BY D. Tolster | |
| | | PROCESSED BY E. Kearney | |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-----------|---|------------------------------------|-----------|-----------|-------------|-------------|-----------|----------------------------------|------------------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | MADE GROUND comprised of: Stiff brown sandy gravelly CLAY. | [Cross-hatched pattern] | | 0.20 | | | | | | |
| 1 | MADE GROUND comprised of: Firm to stiff brown mottled grey sandy gravelly silty CLAY. | | | | | AA38088 | B | 1.00 | N = 25 (4, 6, 6, 6, 6, 7) | |
| 2 | | | | | AA38089 | B | 2.00 | N = 14 (2, 1, 2, 3, 4, 5) | | |
| 3 | Very stiff to hard black sandy gravelly silty CLAY. Has a medium cobble and boulder content which are >500mm in size. | [Pattern with 'x' and 'o' symbols] | | 2.80 | AA38090 | B | 3.00 | N = 33 (6, 7, 9, 6, 9, 9) | | |
| 4 | | | | | AA38091 | B | 4.00 | N = 50/150 mm (19, 6, 32, 18) | | |
| 5 | | | | | AA111709 | B | 5.00 | N = 42 (7, 8, 11, 11, 10, 10) | | |
| 6 | OBSTRUCTION End of Borehole at 5.70 m | | | | 5.90 | | | | N = 50/75 mm (18, 25, 50) | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|-----------------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 4.1 | 4.3 | 1 | | | | | | | No water strike |
| 5.7 | 5.9 | 2 | | | | | | | |

| INSTALLATION DETAILS | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
|----------------------|-----------|--------|---------|------|------|------------|--------------|----------------|----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | |
| | | | | | | | | | |

REMARKS CAT scanned location.

Sample Legend

D - Small Disturbed (lub) Sample
 B - Bulk Disturbed
 LB - Large Bulk Disturbed
 Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter Sample
 P - Undisturbed Piston Sample
 W - Water Sample

IGSL BH LOG 21813X.GPJ IGSL.GDT 17/6/19



GEOTECHNICAL BORING RECORD

REPORT NUMBER

21813

| | | | | |
|---|--|-----------------------------------|----------------------------------|--------------------------------|
| CONTRACT Airton Road, Tallaght | | | BOREHOLE NO. BH02 | |
| CO-ORDINATES | | | SHEET Sheet 1 of 1 | |
| GROUND LEVEL (m AOD) | | RIG TYPE Dando 2000 | DATE COMMENCED 28/05/2019 | |
| | | BOREHOLE DIAMETER (mm) 200 | DATE COMPLETED 28/05/2019 | |
| | | BOREHOLE DEPTH (m) 1.40 | | |
| CLIENT Airton Road Properties Ltd. | | SPT HAMMER REF. NO. | | BORED BY D. Tolster |
| ENGINEER Barrett Mahony CE | | ENERGY RATIO (%) | | PROCESSED BY E. Kearney |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-----------|--|--------|-----------|-----------|-------------|-------------|-----------|----------|------------------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | MADE GROUND comprised of: Soft sandy gravelly silty CLAY. Has a low cobble and boulder content which are >400mm in size. | | | | | | | | | |
| 1 | | | | 1.40 | | | | | N = 11 (2, 2, 1, 3, 5, 2) | |
| 2 | OBSTRUCTION: Possibly a large cobble or boulder. End of Borehole at 1.40 m | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|-----------------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 1.2 | 1.4 | 1.5 | | | | | | | No water strike |

| INSTALLATION DETAILS | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
|----------------------|-----------|--------|---------|------|------|------------|--------------|----------------|----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | |
| | | | | | | | | | |

| | |
|--------------------------------------|--|
| REMARKS CAT scanned location. | Sample Legend D - Small Disturbed (1ub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample |
|--------------------------------------|--|

IGSL BH LOG 21813X.GPJ IGSL_GDT 17/6/19



GEOTECHNICAL BORING RECORD

REPORT NUMBER

21813

| | | | |
|---|--|-----------------------------------|----------------------------------|
| CONTRACT Airton Road, Tallaght | | BOREHOLE NO. BH02A | |
| CO-ORDINATES | | SHEET Sheet 1 of 1 | |
| GROUND LEVEL (m AOD) | | RIG TYPE Dando 2000 | DATE COMMENCED 28/05/2019 |
| | | BOREHOLE DIAMETER (mm) 200 | DATE COMPLETED 28/05/2019 |
| | | BOREHOLE DEPTH (m) 6.10 | |
| CLIENT Airton Road Properties Ltd. | | SPT HAMMER REF. NO. | |
| ENGINEER Barrett Mahony CE | | ENERGY RATIO (%) | |
| | | BORED BY D. Tolster | |
| | | PROCESSED BY E. Kearney | |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-----------|---|--------|-----------|-----------|-------------|-------------|-----------|----------|-----------------------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | MADE GROUND comprised of: Soft sandy gravelly silty CLAY. Has a low cobble and boulder content which are >400mm in size. | | | | | | | | | |
| 1 | | | | | AA38092 | B | 1.00 | | N = 7 (3, 4, 2, 2, 1, 2) | |
| 2 | | | | | AA38093 | B | 2.00 | | N = 3 (0, 0, 0, 0, 1, 2) | |
| 2.70 | | | | | | | | | | |
| 3 | Stiff grey and grey/brown sandy gravelly silty CLAY. Has a medium cobble and boulder content which are >500mm in size. | | | | | | | | | |
| 3.90 | | | | | AA38094 | B | 3.00 | | N = 28 (11, 6, 4, 6, 8, 10) | |
| 4 | Very stiff to hardblack very sandy gravelly silty CLAY. Has a medium cobble and boulder content which are >600mm in size. | | | | | | | | | |
| 4 | | | | | AA38095 | B | 4.00 | | N = 53 (8, 13, 15, 12, 12, 14) | |
| 5 | | | | | AA38096 | B | 5.00 | | N = 46 (6, 14, 10, 10, 15, 11) | |
| 6 | OBSTRUCTION End of Borehole at 6.10 m | | | | | | | | | |
| 6.10 | | | | | | | | | N = 50/150 mm (12, 18, 27, 23) | |
| 7 | | | | | | | | | | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|----------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 4.2 | 4.4 | 1 | | 4.00 | 4.00 | | | 20 | Seepage |
| 5.3 | 5.4 | 0.75 | | | | | | | |
| 5.9 | 6.1 | 2 | | | | | | | |

| INSTALLATION DETAILS | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
|----------------------|-----------|--------|---------|------|------|------------|--------------|----------------|----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | |
| | | | | | | | | | |

| | |
|--------------------------------------|--|
| REMARKS CAT scanned location. | Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample |
|--------------------------------------|--|

IGSL BH LOG 21813X.GPJ IGSL.GDT 17/6/19



GEOTECHNICAL BORING RECORD

REPORT NUMBER

21813

| | | | |
|---|--------------------------------|-----------------------------------|----------------------------------|
| CONTRACT Airton Road, Tallaght | | BOREHOLE NO. BH03 | |
| CO-ORDINATES | | SHEET Sheet 1 of 1 | |
| GROUND LEVEL (m AOD) | RIG TYPE Dando 2000 | BOREHOLE DIAMETER (mm) 200 | DATE COMMENCED 31/05/2019 |
| | BOREHOLE DEPTH (m) 6.40 | | DATE COMPLETED 04/06/2019 |
| CLIENT Airton Road Properties Ltd. | SPT HAMMER REF. NO. | BORED BY D. Tolster | |
| ENGINEER Barrett Mahony CE | ENERGY RATIO (%) | PROCESSED BY F.C | |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-----------|---|--------|-----------|-----------|-------------|-------------|-----------|----------|-----------------------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | TARMACADAM | | | 0.10 | | | | | | |
| | MADE GROUND (Comprised of CL804 stone fill with cobbles) | | | 0.50 | | | | | | |
| | Firm grey/brown SILT/CLAY with some gravel | | | 1.40 | AA117468 | B | 1.00 | | N = 18 (2, 3, 3, 4, 6, 5) | |
| | Firm dark brown/grey gravelly CLAY | | | 1.90 | | | | | | |
| | Very stiff to hard black sandy gravelly CLAY with angular cobbles | | | | AA117469 | B | 2.00 | | N = 34 (4, 3, 6, 8, 10, 10) | |
| | | | | | AA117470 | B | 3.00 | | N = 55 (4, 8, 12, 14, 14, 15) | |
| | | | | | AA117471 | B | 4.00 | | N = 54 (8, 9, 15, 10, 12, 17) | |
| | | | | | AA117472 | B | 5.00 | | N = 63 (6, 12, 14, 18, 19, 12) | |
| | | | | | AA117473 | B | 6.00 | | N = 50/75 mm (25, 50) | |
| | OBSTRUCTION End of Borehole at 6.40 m | | | 6.40 | | | | | | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|----------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 5 | 5.3 | 1.5 | | 4.00 | 4.00 | No | 3.50 | 20 | Slow |
| 5.7 | 5.8 | 0.5 | | | | | | | |
| 6.3 | 6.4 | 1.5 | | | | | | | |

| INSTALLATION DETAILS | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
|----------------------|-----------|--------|---------|------|----------|------------|--------------|----------------|----------------|
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | |
| | | | | | 31-05-19 | 5.00 | 5.00 | 4.00 | End of 1st Day |
| | | | | | 04-06-19 | 6.00 | Nil | 1.10 | End of BH |

| | |
|---|--|
| REMARKS CAT scanned location and hand dug inspection pit carried out | Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample |
|---|--|

IGSL BH LOG 21813X.GPJ IGSL.GDT 17/6/19



GEOTECHNICAL BORING RECORD

REPORT NUMBER

21813

| | | | | |
|---|--|-----------------------------------|----------------------------------|----------------------------|
| CONTRACT Airton Road, Tallaght | | | BOREHOLE NO. BH04 | |
| CO-ORDINATES | | | SHEET Sheet 1 of 1 | |
| GROUND LEVEL (m AOD) | | RIG TYPE Dando 2000 | DATE COMMENCED 30/05/2019 | |
| | | BOREHOLE DIAMETER (mm) 200 | DATE COMPLETED 30/05/2019 | |
| | | BOREHOLE DEPTH (m) 6.40 | | |
| CLIENT Airton Road Properties Ltd. | | SPT HAMMER REF. NO. | | BORED BY D. Tolster |
| ENGINEER Barrett Mahony CE | | ENERGY RATIO (%) | | PROCESSED BY F.C |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-----------|---|--------|-----------|-----------|-------------|-------------|-----------|-----------------------------------|--------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | Tarmacadam | | | 0.10 | | | | | | |
| | MADE GROUND (Comprised of CL.804 stone fill) | | | 0.40 | | | | | | |
| | Firm brown sandy SILT/CLAY with some fine gravel | | | | AA106096 | B | 1.00 | N = 24 (3, 5, 5, 5, 6, 8) | | |
| 1 | | | | 1.60 | | | | | | |
| | Very stiff brown gravelly CLAY with occasional cobbles | | | | AA106097 | B | 2.00 | N = 44 (6, 7, 9, 12, 11, 12) | | |
| 2 | | | | 2.80 | | | | | | |
| | Hard black sandy gravelly CLAY with large angular cobbles | | | | AA106098 | B | 3.00 | N = 48 (6, 8, 13, 12, 12, 11) | | |
| 3 | | | | | AA106099 | B | 4.00 | N = 64 (7, 11, 15, 15, 16, 18) | | |
| 4 | | | | | AA106100 | B | 5.00 | N = 56 (9, 14, 10, 14, 14, 18) | | |
| 5 | | | | | AA106101 | B | 6.00 | N = 50/75 mm (25, 50) | | |
| 6 | Obstruction End of Borehole at 6.40 m | | | 6.40 | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|-----------------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 3.1 | 3.4 | 1 | | | | | | | No water strike |
| 5.6 | 5.8 | 0.75 | | | | | | | |
| 6.3 | 6.4 | 2 | | | | | | | |

| INSTALLATION DETAILS | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
|----------------------|-----------|--------|---------|------|------|------------|--------------|----------------|----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | |
| | | | | | | | | | |

REMARKS CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 21813X.GPJ IGSL.GDT 17/6/19



GEOTECHNICAL BORING RECORD

REPORT NUMBER

21813

| | | |
|---|-----------------------------------|----------------------------------|
| CONTRACT Airton Road, Tallaght | | BOREHOLE NO. BH05 |
| CO-ORDINATES | | SHEET Sheet 1 of 1 |
| GROUND LEVEL (m AOD) | RIG TYPE Dando 2000 | DATE COMMENCED 28/05/2019 |
| | BOREHOLE DIAMETER (mm) 200 | DATE COMPLETED 29/05/2019 |
| | BOREHOLE DEPTH (m) 8.30 | |
| CLIENT Airton Road Properties Ltd. | SPT HAMMER REF. NO. | BORED BY D. Tolster |
| ENGINEER Barrett Mahony CE | ENERGY RATIO (%) | PROCESSED BY E. Kearney |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-----------|--|--------|-----------|-----------|-------------|-------------|-----------|----------|-------------------------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | MADE GROUND comprised of: Firm brown sandy gravelly silty CLAY. | | | | | | | | | |
| 1 | MADE GROUND comprised of: Firm to stiff brown sandy gravelly silty CLAY. Has a low cobble content. | | | 1.10 | AA11401 | B | 1.00 | | N = 22 (2, 5, 6, 6, 6, 4) | |
| 2 | | | | 2.90 | AA11402 | B | 2.00 | | N = 19 (2, 2, 4, 4, 5, 6) | |
| 3 | Very stiff dark grey sandy gravelly silty CLAY. Has a low cobble and boulder content which are >400mm in size. | | | 3.40 | AA11403 | B | 3.00 | | N = 53 (8, 7, 13, 16, 14, 10) | |
| 4 | Very stiff to hard black sandy gravelly silty CLAY. Has a low cobble and boulder content which are >500mm in size. | | | | AA11404 | B | 4.00 | | N = 37 (5, 4, 7, 9, 10, 11) | |
| 5 | | | | | AA11405 | B | 5.00 | | N = 50/150 mm (8, 11, 16, 34) | |
| 6 | | | | | AA11406 | B | 6.00 | | N = 55 (8, 11, 12, 14, 13, 16) | |
| 7 | | | | | AA11407 | B | 7.00 | | N = 51 (8, 10, 12, 14, 12, 13) | |
| 8 | | | | 8.30 | AA11408 | B | 8.00 | | N = 50/225 mm (16, 9, 20, 22, 8) | |
| 9 | End of Borehole at 8.30 m | | | | | | | | | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|----------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 3.2 | 3.5 | 0.5 | | 6.50 | 6.50 | 6.70 | 5.80 | 20 | Moderate |
| 5.2 | 5.4 | 0.75 | | | | | | | |
| 8.1 | 8.3 | 2 | | | | | | | |

| INSTALLATION DETAILS | | | | | GROUNDWATER PROGRESS | | | | |
|----------------------|-----------|--------|---------|------|----------------------|------------|--------------|----------------|----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
| | | | | | | | | | |

| | |
|--------------------------------------|--|
| REMARKS CAT scanned location. | Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample |
|--------------------------------------|--|

IGSL BH LOG 21813X.GPJ IGSL.GDT 17/8/19



GEOTECHNICAL BORING RECORD

REPORT NUMBER

21813

| | | | | | |
|---|--|-----------------------------------|----------------------------------|----------------------------|--|
| CONTRACT Airton Road, Tallaght | | | BOREHOLE NO. BH06 | | |
| | | | SHEET Sheet 1 of 1 | | |
| CO-ORDINATES | | RIG TYPE Dando 2000 | DATE COMMENCED 30/05/2019 | | |
| GROUND LEVEL (m AOD) | | BOREHOLE DIAMETER (mm) 200 | DATE COMPLETED 30/05/2019 | | |
| | | BOREHOLE DEPTH (m) 6.60 | | | |
| CLIENT Airton Road Properties Ltd. | | SPT HAMMER REF. NO. | | BORED BY D. Tolster | |
| ENGINEER Barrett Mahony CE | | ENERGY RATIO (%) | | PROCESSED BY F.C | |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-----------|--|--------|-----------|-----------|-------------|-------------|-----------|----------|---------------------------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | MADE GROUND (Comprised of brown sandy gravelly CLAY with some cobbles) | | | | | | | | | |
| 1 | | | | 1.30 | AA114409 | B | 1.00 | | N = 15 (3, 3, 4, 4, 4, 3) | |
| 2 | Firm to stiff brown sandy SILT/CLAY with some gravel and occasional cobbles | | | | AA114410 | B | 2.00 | | N = 21 (2, 2, 4, 5, 6, 6) | |
| 3 | | | | 2.90 | AA114411 | B | 3.00 | | N = 32 (7, 7, 8, 8, 9, 9) | |
| 4 | Very stiff to hard black sandy gravelly CLAY with some cobbles and occasional boulders | | | | AA114412 | B | 4.00 | | N = 44 (10, 6, 11, 10, 11, 12) | |
| 5 | | | | | AA114413 | B | 5.00 | | N = 46 (12, 13, 16, 8, 10, 12) | |
| 6 | | | | | AA114414 | B | 6.00 | | N = 50/225 mm (10, 19, 12, 15, 23) | |
| 6.60 | Obstruction End of Borehole at 6.60 m | | | | | | | | | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|----------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 3 | 3.3 | 0.5 | | 6.00 | 6.00 | No | 5.30 | 20 | Moderate |
| 4.5 | 4.7 | 0.5 | | | | | | | |
| 6.4 | 6.6 | 2 | | | | | | | |

| INSTALLATION DETAILS | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
|----------------------|-----------|--------|---------|------|----------|------------|--------------|----------------|-----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | 30-05-19 | 6.00 | Nil | 5.00 | End of BH |
| | | | | | | | | | |

| | |
|---|---|
| REMARKS CAT scanned location and hand dug inspection pit carried out . | Sample Legend D - Small Disturbed (tub) Sample B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample |
|---|---|

IGSL BH LOG 21813X.GPJ IGSL.GDT 17/6/19



GEOTECHNICAL BORING RECORD

REPORT NUMBER

21813

| | | | |
|---|-----------------------------------|----------------------------------|----------------------------------|
| CONTRACT Airton Road, Tallaght | | BOREHOLE NO. BH07 | |
| CO-ORDINATES | | SHEET Sheet 1 of 1 | |
| GROUND LEVEL (m AOD) | RIG TYPE Dando 2000 | DATE COMMENCED 31/05/2019 | DATE COMPLETED 04/06/2019 |
| CLIENT Airton Road Properties Ltd. | BOREHOLE DIAMETER (mm) 200 | | |
| ENGINEER Barrett Mahony CE | BOREHOLE DEPTH (m) 7.40 | | |
| SPT HAMMER REF. NO. | | BORED BY D. Tolster | |
| ENERGY RATIO (%) | | PROCESSED BY F.C | |

| Depth (m) | Description | Legend | Elevation | Depth (m) | Samples | | | | Field Test Results | Standpipe Details |
|-------------|--|--------|-----------|-----------|-------------|-------------|-----------|-----------------------------------|--------------------|-------------------|
| | | | | | Ref. Number | Sample Type | Depth (m) | Recovery | | |
| 0 | TARMACADAM | | | 0.10 | | | | | | |
| 0.10 - 1.50 | Firm brown sandy SILT/CLAY with some gravel | | | 1.50 | AA114415 | B | 1.00 | N = 17 (3, 2, 3, 4, 5, 5) | | |
| 1.50 - 2.60 | Stiff grey/brown sandy SILT/CLAY with gravel and occasional cobbles | | | 2.60 | AA114416 | B | 2.00 | N = 21 (5, 3, 3, 7, 6, 5) | | |
| 2.60 - 3.00 | Very stiff to hard very sandy very gravelly CLAY with some cobbles and occasional boulders | | | 3.00 | AA114417 | B | 3.00 | N = 44 (8, 7, 10, 10, 14, 10) | | |
| 3.00 - 4.00 | | | | 4.00 | AA114418 | B | 4.00 | N = 50 (8, 13, 13, 10, 14, 13) | | |
| 4.00 - 5.00 | | | | 5.00 | AA114419 | B | 5.00 | N = 43 (8, 7, 7, 8, 12, 16) | | |
| 5.00 - 6.00 | | | | 6.00 | AA114420 | B | 6.00 | N = 60 (4, 12, 19, 15, 10, 16) | | |
| 6.00 - 7.40 | | | | 7.00 | AA114421 | B | 7.00 | N = 56 (8, 12, 11, 17, 13, 15) | | |
| 7.40 - 8.00 | Obstruction End of Borehole at 7.40 m | | | | | | | | | |

| HARD STRATA BORING/CHISELLING | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------------|--------|----------|----------|----------------------|--------------|-----------|---------|------------|----------|
| From (m) | To (m) | Time (h) | Comments | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| 3.1 | 3.4 | 1 | | 4.30 | 4.30 | 4.50 | 3.50 | 20 | Moderate |
| 5.2 | 5.5 | 1.5 | | 5.50 | 5.50 | 7.00 | 4.70 | 20 | |
| 7.2 | 7.4 | 2 | | | | | | | |

| INSTALLATION DETAILS | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
|----------------------|-----------|--------|---------|------|------|------------|--------------|----------------|----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | |
| | | | | | | | | | |

REMARKS CAT scanned location and hand dug inspection pit carried out.

Sample Legend
 D - Small Disturbed (tub) Sample
 B - Bulk Disturbed Sample
 LB - Large Bulk Disturbed Sample
 Env - Environmental Sample (Jar + Vial + Tub)
 UT - Undisturbed 100mm Diameter Sample
 P - Undisturbed Piston Sample
 W - Water Sample

IGSL BH LOG 21813X.GPJ IGSL.GDT 17/6/19

Appendix II Rotary Core Records



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | | |
|---|--|--------------------------------|
| CONTRACT Airton Road, Tallaght | | DRILLHOLE NO RC01 |
| CO-ORDINATES | | SHEET Sheet 1 of 2 |
| GROUND LEVEL (mOD) | | DATE DRILLED 28/05/2019 |
| CLIENT Airton Road Properties Ltd. | | DATE LOGGED 28/05/2019 |
| ENGINEER Barrett Mahony CE | | DRILLED BY IGSL |
| RIG TYPE Geo 305 | | LOGGED BY D.O'Shea |
| FLUSH Air/Mist | | |
| INCLINATION (deg) -90 | | |
| CORE DIAMETER (mm) 78 | | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|---------------------------------|
| 0 | | | | | 0 250 500 | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy gravelly CLAY with occasional cobbles | | | | |
| 1.50 | 0 | 0 | 0 | | | | | | | | | N = 20 (6, 7, 5, 2, 7, 6) |
| 3.00 | 0 | 0 | 0 | | | | | | | | | N = 35 (2, 4, 9, 11, 7, 8) |
| 4.50 | 0 | 0 | 0 | | | | | | | | | N = 27 (6, 6, 7, 9, 4, 7) |
| 6.00 | 0 | 0 | 0 | | | | | | | | | N = 43 (9, 11, 22, 8, 4, 9) |
| 7.50 | | | | | | | | | 7.50 | | | |
| 8.00 | 47 | 0 | 0 | | | | | Returns of firm black slightly sandy gravelly CLAY with occasional cobbles. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular of limestone. | | | | N = 29/50 mm (25, 29) |
| 9.00 | | | | | | | | | 9.00 | | | |
| 9.00 | 0 | 0 | 0 | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as gravelly cobbly CLAY | | | | N = 48 (4, 7, 9, 12, 11, 16) |

| | | | | | | | | | | | |
|---|-----------|--------|---------|---------|--|-----------------------------|--------------|--------------|----------------|------------|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 8.50 | 8.50 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | | | |
| 28-05-19 | 12.00 | 1.50 | 12.00 | 50mm SP | | | | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | |
|--|--|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC01 SHEET Sheet 2 of 2 |
| CO-ORDINATES GROUND LEVEL (mOD) | RIG TYPE Geo 305 FLUSH Air/Mist INCLINATION (deg) -90 CORE DIAMETER (mm) 78 |
| CLIENT Airton Road Properties Ltd. ENGINEER Barrett Mahony CE | DATE DRILLED 28/05/2019 DATE LOGGED 28/05/2019 DRILLED BY IGSL LOGGED BY D.O'Shea |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|-----------------------------------|
| 10 | 10.50 | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as gravelly cobbly CLAY (<i>continued</i>) | | | | N = 65 (9, 11, 17, 19, 10, 19) |
| 11 | | 0 | 0 | 0 | | | | | | | | |
| 12 | 12.00 | | | | | | | Very stiff to hard, medium brown slightly sandy gravelly CLAY. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. | 12.00 | | | N = 53 (7, 4, 11, 6, 19, 17) |
| 13 | 13.50 | 100 | 0 | 0 | | | | | | | | |
| | | | | | | | | End of Borehole at 13.50 m | 13.50 | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|-------|------|-------|---------|--|-----------------------------|--------------|--------------|----------------|------------|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 8.50 | 8.50 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| 28-05-19 | 12.00 | 1.50 | 12.00 | 50mm SP | Water level recorded at 5 mins after end of drilling | | | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/06/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | |
|---|--------------------------------|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC02 |
| CO-ORDINATES | SHEET Sheet 1 of 2 |
| GROUND LEVEL (mOD) | DATE DRILLED 23/05/2019 |
| RIG TYPE Geo 305 | DATE LOGGED 23/05/2019 |
| CLIENT Airton Road Properties Ltd. | DRILLED BY IGSL |
| ENGINEER Barrett Mahony CE | LOGGED BY D.O'Shea |
| FLUSH Air/Mist | |
| INCLINATION (deg) -90 | |
| CORE DIAMETER (mm) 78 | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|--|-----------|-----------|-------------------|-----------------------------------|
| 0 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as very sandy gravelly CLAY with occasional cobbles | | | | |
| 1 | 1.50 | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy gravelly CLAY with occasional cobbles | 1.50 | | | N = 24 (3, 4, 4, 4, 9, 7) |
| 2 | | 0 | 0 | 0 | | | | | | | | |
| 3 | 3.00 | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as very sandy gravelly CLAY with occasional cobbles | 3.00 | | | N = 33 (12, 9, 7, 8, 11, 7) |
| 4 | | 0 | 0 | 0 | | | | | | | | |
| 5 | 4.50 | | | | | | | | | | | N = 29 (6, 5, 5, 9, 7, 8) |
| 6 | | 0 | 0 | 0 | | | | | | | | |
| 7 | 6.00 | | | | | | | | | | | N = 48 (7, 6, 7, 10, 11, 20) |
| 8 | | 0 | 0 | 0 | | | | | | | | |
| 9 | 7.50 | | | | | | | | | | | N = 52 (5, 6, 6, 10, 14, 22) |
| | | 0 | 0 | 0 | | | | | | | | |
| | 9.00 | | | | | | | | | | | |
| | | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as GRAVEL | 9.60 | | | N = 54 (4, 19, 11, 17, 14, 12) |

| REMARKS | WATER STRIKE DETAILS | | | | | | | | | | | | |
|-------------------------|---|--------------|--------------|-----------|------------|------------|----------|------|------|----|--|--|------|
| Hole cased 0.00-12.00m. | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Water Strike</th> <th>Casing Depth</th> <th>Sealed At</th> <th>Rise To</th> <th>Time (min)</th> <th>Comments</th> </tr> <tr> <td>9.60</td> <td>9.60</td> <td>No</td> <td></td> <td></td> <td>Slow</td> </tr> </table> | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments | 9.60 | 9.60 | No | | | Slow |
| | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments | | | | | | | |
| 9.60 | 9.60 | No | | | Slow | | | | | | | | |

| INSTALLATION DETAILS | | | | | GROUNDWATER DETAILS | | | | |
|----------------------|-----------|--------|---------|------|---------------------|------------|--------------|----------------|----------|
| Date | Tip Depth | RZ Top | RZ Base | Type | Date | Hole Depth | Casing Depth | Depth to Water | Comments |
| | | | | | | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

CONTRACT Airton Road, Tallaght

DRILLHOLE NO RC02

SHEET Sheet 2 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE Geo 305

FLUSH Air/Mist

DATE DRILLED 23/05/2019

DATE LOGGED 23/05/2019

CLIENT Airton Road Properties Ltd.

INCLINATION (deg) -90

DRILLED BY IGSL

ENGINEER Barrett Mahony CE

CORE DIAMETER (mm) 78

LOGGED BY D.O'Shea

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|-------------------------------|
| 10 | 10.50 | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as GRAVEL (<i>continued</i>) | | | | N = 31 (3, 3, 7, 5, 9, 10) |
| 11 | | 0 | 0 | 0 | | | | | | | | |
| 12 | 12.00 | | | | | | | End of Borehole at 12.00 m | 12.00 | | | N = 28 (5, 5, 5, 8, 7, 8) |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |

| REMARKS | | | | | | WATER STRIKE DETAILS | | | | | |
|-------------------------|-----------|--------|---------|------|--|----------------------|--------------|--------------|----------------|--|----------|
| Hole cased 0.00-12.00m. | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 9.60 | 9.60 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| | | | | | | 29-05-19 | 12.00 | 12.00 | 3.75 | Water level recorded at 5 mins after end of drilling | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | | |
|---|--|--------------------------------|
| CONTRACT Airton Road, Tallaght | | DRILLHOLE NO RC03 |
| CO-ORDINATES | | SHEET Sheet 1 of 2 |
| GROUND LEVEL (mOD) | | DATE DRILLED 04/06/2019 |
| RIG TYPE Geo 305 | | DATE LOGGED 05/06/2019 |
| FLUSH Air/Mist | | DRILLED BY IGSL |
| CLIENT Airton Road Properties Ltd. | | LOGGED BY D.O'Shea |
| ENGINEER Barrett Mahony CE | | |
| INCLINATION (deg) -90 | | |
| CORE DIAMETER (mm) 78 | | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) | |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|---------------|-------------------------------|
| 0 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy gravelly CLAY with occasional cobbles SYMMETRIX DRILLING: No recovery, observed by driller as sandy GRAVEL | | | | | |
| 1 | 1.50 | 0 | 0 | 0 | | | | | 1.50 | | | | N = 26 (3, 7, 9, 5, 5, 7) |
| 2 | | 0 | 0 | 0 | | | | | | | | | N = 37 (2, 2, 14, 7, 8, 8) |
| 3 | 3.00 | 0 | 0 | 0 | | | | | | | | | N = 14 (3, 2, 3, 4, 3, 4) |
| 4 | | 0 | 0 | 0 | | | | | | | | | N = 15 (2, 2, 2, 3, 5, 5) |
| 5 | 4.50 | 0 | 0 | 0 | | | | | | | | | N = 22 (3, 4, 5, 5, 6, 6) |
| 6 | | 0 | 0 | 0 | | | | | | | | | N = 12 (2, 2, 2, 3, 3, 4) |
| 7 | 6.00 | 0 | 0 | 0 | | | | | | | | | |
| 8 | | 0 | 0 | 0 | | | | | | | | | |
| 9 | 7.50 | 0 | 0 | 0 | | | | | | | | | |
| | 9.00 | 0 | 0 | 0 | | | | | | | | | |

| | | | | | | | | | | | |
|---|-----------|--------|---------|------|--|-----------------------------|--------------|--------------|----------------|------------|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 1.90 | 1.90 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | | | |
| | | | | | | | | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/06/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | | |
|---|------------------------------|--------------------------------|
| CONTRACT Airton Road, Tallaght | | DRILLHOLE NO RC03 |
| CO-ORDINATES | | SHEET Sheet 2 of 2 |
| GROUND LEVEL (mOD) | RIG TYPE Geo 305 | DATE DRILLED 04/06/2019 |
| | FLUSH Air/Mist | DATE LOGGED 05/06/2019 |
| CLIENT Airton Road Properties Ltd. | INCLINATION (deg) -90 | DRILLED BY IGSL |
| ENGINEER Barrett Mahony CE | CORE DIAMETER (mm) 78 | LOGGED BY D.O'Shea |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|--|-----------|-----------|-------------------|------------------------------|
| 10 | 10.50 | | | | 0 250 500 | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy GRAVEL (continued) | | | | N = 32 (4, 7, 7, 8, 8, 9) |
| 11 | | 0 | 0 | 0 | | | | | | | | |
| 12 | 12.00 | | | | | | | End of Borehole at 12.00 m | 12.00 | | | N = 24 (3, 3, 3, 5, 7, 9) |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|-----------|--------|---------|------|--|-----------------------------|--------------|--------------|----------------|------------|--|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 1.90 | 1.90 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | 05-06-19 | 12.00 | 12.00 | 5.60 | Water level recorded at 5 mins after end of drilling |

IGSL RC F1 10M 21813.GPJ IGSL.GDT 19/06/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | |
|---|--------------------------------|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC04 |
| CO-ORDINATES | SHEET Sheet 1 of 2 |
| GROUND LEVEL (mOD) | DATE DRILLED 04/06/2019 |
| RIG TYPE Geo 305 | DATE LOGGED 04/06/2019 |
| CLIENT Airton Road Properties Ltd. | DRILLED BY IGSL |
| ENGINEER Barrett Mahony CE | LOGGED BY D.O'Shea |
| FLUSH Air/Mist | |
| INCLINATION (deg) -90 | |
| CORE DIAMETER (mm) 78 | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|-------------------------------|
| 0 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy GRAVEL | | | | |
| 1.50 | 0 | 0 | 0 | | | | | | 1.50 | | | N = 19 (2, 3, 3, 4, 7, 5) |
| 2 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy gravelly CLAY with occasional cobbles | | | | |
| 3.00 | 0 | 0 | 0 | | | | | | | | | N = 16 (3, 3, 3, 3, 5, 5) |
| 4.50 | 0 | 0 | 0 | | | | | | 4.50 | | | |
| 5 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as cobbly SAND | | | | |
| 6.00 | 0 | 0 | 0 | | | | | | | | | N = 14 (2, 2, 4, 3, 3, 4) |
| 7.50 | 0 | 0 | 0 | | | | | | 7.50 | | | |
| 8 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as cobbly GRAVEL | | | | |
| 9.00 | 0 | 0 | 0 | | | | | | 9.00 | | | N = 18 (3, 6, 4, 4, 5, 5) |
| 9 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as GRAVEL | | | | |
| | 0 | 0 | 0 | | | | | | | | | N = 36 (9, 7, 11, 8, 8, 9) |
| | | | | | | | | | | | | N = 29 (4, 8, 8, 9, 1, 11) |

| REMARKS | WATER STRIKE DETAILS | | | | | |
|-------------------------|----------------------|--------------|-----------|---------|------------|----------|
| Hole cased 0.00-12.00m. | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | 8.50 | 8.50 | No | | | Slow |

| GROUNDWATER DETAILS | | | | | |
|---------------------|------------|--------------|----------------|----------|--|
| Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| | | | | | |

| INSTALLATION DETAILS | | | | |
|----------------------|-----------|--------|---------|------|
| Date | Tip Depth | RZ Top | RZ Base | Type |
| | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | | |
|---|------------------------------|--------------------------------|
| CONTRACT Airton Road, Tallaght | | DRILLHOLE NO RC04 |
| CO-ORDINATES | | SHEET Sheet 2 of 2 |
| GROUND LEVEL (mOD) | RIG TYPE Geo 305 | DATE DRILLED 04/06/2019 |
| CLIENT Airton Road Properties Ltd. | FLUSH Air/Mist | DATE LOGGED 04/06/2019 |
| ENGINEER Barrett Mahony CE | INCLINATION (deg) -90 | DRILLED BY IGSL |
| | CORE DIAMETER (mm) 78 | LOGGED BY D.O'Shea |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|---------------------------------|
| 10 | 10.50 | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as GRAVEL <i>(continued)</i> | 10.50 | | | N = 43 (6, 6, 8, 11, 12, 12) |
| 11 | | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as gravelly CLAY | | | | |
| 12 | 12.00 | | | | | | | End of Borehole at 12.00 m | 12.00 | | | N = 32 (6, 7, 7, 7, 9) |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|-----------|--------|---------|------|--|-----------------------------|--------------|--------------|----------------|--|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 8.50 | 8.50 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | 04-06-19 | 12.00 | 12.00 | 4.90 | Water level recorded at 5 mins after end of drilling | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | |
|---|--------------------------------|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC05 |
| CO-ORDINATES | SHEET Sheet 1 of 2 |
| GROUND LEVEL (mOD) | DATE DRILLED 30/05/2019 |
| CLIENT Airton Road Properties Ltd. | DATE LOGGED 31/05/2019 |
| ENGINEER Barrett Mahony CE | DRILLED BY IGSL |
| RIG TYPE Geo 305 | LOGGED BY D.O'Shea |
| FLUSH Air/Mist | |
| INCLINATION (deg) -90 | |
| CORE DIAMETER (mm) 78 | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Stacpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|--|-----------|-----------|------------------|-----------------------------------|
| 0 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy gravelly CLAY with occasional cobbles | | | | |
| 1 | 1.50 | 0 | 0 | 0 | | | | | | | | N = 21 (3, 3, 4, 5, 6, 6) |
| 2 | | 0 | 0 | 0 | | | | | | | | N = 33 (9, 12, 7, 7, 9, 10) |
| 3 | 3.00 | 0 | 0 | 0 | | | | | | | | N = 36 (4, 4, 5, 5, 12, 14) |
| 4 | | 0 | 0 | 0 | | | | | | | | N = 44 (9, 11, 10, 11, 11, 12) |
| 5 | 4.50 | 0 | 0 | 0 | | | | | | | | N = 47 (7, 7, 7, 14, 12, 14) |
| 6 | | 0 | 0 | 0 | | | | | | | | N = 65 (9, 12, 28, 12, 10, 15) |
| 7 | 6.00 | 0 | 0 | 0 | | | | | | | | |
| 8 | 7.50 | 0 | 0 | 0 | | | | | | | | |
| 9 | 9.00 | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as very sandy gravelly CLAY with occasional cobbles | 9.00 | | | |

| | | | | | | | | | | | |
|---|-----------|--------|---------|------|--|-----------------------------|--------------|--------------|----------------|------------|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 8.90 | 8.90 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | |
|---|--------------------------------|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC05 |
| CO-ORDINATES | SHEET Sheet 2 of 2 |
| GROUND LEVEL (mOD) | DATE DRILLED 30/05/2019 |
| CLIENT Airton Road Properties Ltd. | DATE LOGGED 31/05/2019 |
| ENGINEER Barrett Mahony CE | DRILLED BY IGSL |
| RIG TYPE Geo 305 | LOGGED BY D.O'Shea |
| FLUSH Air/Mist | |
| INCLINATION (deg) -90 | |
| CORE DIAMETER (mm) 78 | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|-------------------------------|
| 10 | 10.50 | | | | 0 250 500 | | | SYMMETRIX DRILLING: No recovery, observed by driller as very sandy gravelly CLAY with occasional cobbles (continued) | | | | N = 27 (17, 12, 6, 7, 7.7) |
| 11 | | 0 | 0 | 0 | | | | | 12.00 | | | N = 29/50 mm (27, 29) |
| 12 | 12.00 | | | | | | | Very stiff to hard, medium brown slightly sandy gravelly CLAY. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. | | | | |
| 13 | | 0 | 0 | 0 | | | | | 13.70 | | | |
| 13.50 | 13.70 | 0 | 0 | 0 | | | | End of Borehole at 13.70 m | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |

| REMARKS | WATER STRIKE DETAILS | | | | | |
|-------------------------|----------------------|--------------|-----------|---------|------------|----------|
| Hole cased 0.00-12.00m. | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | 8.90 | 8.90 | No | | | Slow |

| GROUNDWATER DETAILS | | | | | |
|---------------------|------------|--------------|----------------|--|--|
| Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| 31-05-19 | 13.70 | 12.00 | 4.50 | Water level recorded at 5 mins after end of drilling | |

| INSTALLATION DETAILS | | | | | |
|----------------------|-----------|--------|---------|------|--|
| Date | Tip Depth | RZ Top | RZ Base | Type | |
| | | | | | |

IGSL RC FL 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER
21813

| | |
|---|--------------------------------|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC06 |
| CO-ORDINATES | SHEET Sheet 1 of 2 |
| GROUND LEVEL (mOD) | DATE DRILLED 06/06/2019 |
| RIG TYPE Geo 305 | DATE LOGGED 06/06/2019 |
| FLUSH Air/Mist | DRILLED BY IGSL |
| CLIENT Airton Road Properties Ltd. | LOGGED BY D.O'Shea |
| ENGINEER Barrett Mahony CE | |
| INCLINATION (deg) -90 | |
| CORE DIAMETER (mm) 78 | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|--|-----------|-----------|-------------------|------------------------------------|
| 0 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy gravelly CLAY with occasional cobbles | | | | |
| 1 | 1.50 | 0 | 0 | 0 | | | | | | | | N = 26 (2, 2, 2, 14, 6, 4) |
| 2 | | 0 | 0 | 0 | | | | | | | | N = 23 (3, 3, 3, 3, 3, 12, 5) |
| 3 | 3.00 | 0 | 0 | 0 | | | | | | | | |
| 4 | 4.50 | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as very sandy gravelly CLAY with occasional cobbles | 4.50 | | | N = 24 (2, 3, 4, 4, 7, 9) |
| 5 | | 0 | 0 | 0 | | | | | | | | |
| 6 | 6.00 | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as clayey GRAVEL | 6.00 | | | N = 25 (3, 4, 4, 5, 9, 7) |
| 7 | 7.50 | 0 | 0 | 0 | | | | | | | | |
| 8 | | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy gravelly CLAY with occasional cobbles | 7.50 | | | N = 27/225 mm (7, 9, 9, 8, 10) |
| 9 | 9.00 | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy GRAVEL | 9.00 | | | N = 71 (19, 24, 14, 17, 19, 21) |

| | | | | | | | | | | | |
|---|-----------|--------|---------|---------|--|-----------------------------|--------------|--------------|----------------|------------|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 5.70 | 5.70 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | | | |
| 07-06-19 | 12.00 | 1.00 | 12.00 | 50mm SP | | | | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | | |
|---|------------------------------|--------------------------------|
| CONTRACT Airton Road, Tallaght | | DRILLHOLE NO RC06 |
| CO-ORDINATES | | SHEET Sheet 2 of 2 |
| GROUND LEVEL (mOD) | RIG TYPE Geo 305 | DATE DRILLED 06/06/2019 |
| CLIENT Airton Road Properties Ltd. | FLUSH Air/Mist | DATE LOGGED 06/06/2019 |
| ENGINEER Barrett Mahony CE | INCLINATION (deg) -90 | DRILLED BY IGSL |
| | CORE DIAMETER (mm) 78 | LOGGED BY D.O'Shea |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|--------------------------------|
| 10 | 10.50 | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as sandy GRAVEL (<i>continued</i>) | | | | N = 30 (4, 6, 6, 7, 8, 9) |
| 11 | | 0 | 0 | 0 | | | | | | | | |
| 12 | 12.00 | | | | | | | End of Borehole at 12.00 m | 12.00 | | | N = 41 (3, 5, 9, 9, 11, 12) |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |

| | | | | | | | | | | |
|---|-----------|--------|---------|---------|-----------------------------|--------------|--------------|----------------|--|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | 5.70 | 5.70 | No | | | Slow |
| INSTALLATION DETAILS | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | | |
| 07-06-19 | 12.00 | 1.00 | 12.00 | 50mm SP | 07-06-19 | 12.00 | 12.00 | 3.10 | Water level recorded at 5 mins after end of drilling | |

IGSL RC Fl 10M 21813.GPJ IGSL.GDT 15/06/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | |
|---|--------------------------------|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC07 |
| CO-ORDINATES | SHEET Sheet 1 of 2 |
| GROUND LEVEL (mOD) | DATE DRILLED 05/06/2019 |
| RIG TYPE Geo 305 | DATE LOGGED 06/06/2019 |
| FLUSH Air/Mist | DRILLED BY IGSL |
| CLIENT Airton Road Properties Ltd. | LOGGED BY D.O'Shea |
| ENGINEER Barrett Mahony CE | |
| INCLINATION (deg) -90 | |
| CORE DIAMETER (mm) 78 | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|---|-----------|-----------|-------------------|----------------------------------|
| 0 | | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as CLAY | | | | |
| 1 | 1.50 | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as clayey sandy GRAVEL | 1.50 | | | N = 13 (2, 2, 3, 3, 3, 4) |
| 2 | | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as clayey COBBLES | 3.00 | | | N = 25 (3, 3, 9, 5, 7, 4) |
| 3 | 3.00 | 0 | 0 | 0 | | | | SYMMETRIX DRILLING: No recovery, observed by driller as clayey GRAVEL | 6.00 | | | N = 55 (14, 7, 24, 11, 12, 8) |
| 4 | | 0 | 0 | 0 | | | | | | | | |
| 5 | 4.50 | 0 | 0 | 0 | | | | | | | | |
| 6 | 6.00 | 0 | 0 | 0 | | | | | | | | |
| 7 | | 0 | 0 | 0 | | | | | | | | |
| 8 | 7.50 | 0 | 0 | 0 | | | | | | | | N = 23 (4, 4, 4, 5, 7, 7) |
| 9 | | 0 | 0 | 0 | | | | | | | | |
| | 9.00 | 0 | 0 | 0 | | | | | | | | N = 37 (6, 7, 7, 9, 10, 11) |
| | | 0 | 0 | 0 | | | | | | | | N = 36 (7, 7, 7, 8, 9, 12) |

| | | | | | | | | | | | |
|---|-----------|--------|---------|---------|--|-----------------------------|--------------|--------------|----------------|------------|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 5.40 | 5.40 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | | | |
| 06-06-19 | 12.00 | 1.00 | 12.00 | 50mm SP | | | | | | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

21813

| | |
|---|--------------------------------|
| CONTRACT Airton Road, Tallaght | DRILLHOLE NO RC07 |
| CO-ORDINATES | SHEET Sheet 2 of 2 |
| GROUND LEVEL (mOD) | DATE DRILLED 05/06/2019 |
| RIG TYPE Geo 305 | DATE LOGGED 06/06/2019 |
| FLUSH Air/Mist | DRILLED BY IGSL |
| CLIENT Airton Road Properties Ltd. | LOGGED BY D.O'Shea |
| ENGINEER Barrett Mahony CE | |
| INCLINATION (deg) -90 | |
| CORE DIAMETER (mm) 78 | |

| Downhole Depth (m) | Core Run Depth (m) | T.C.R.% | S.C.R.% | R.Q.D.% | Fracture Spacing Log (mm) | Non-intact Zone | Legend | Description | Depth (m) | Elevation | Standpipe Details | SPT (N Value) |
|--------------------|--------------------|---------|---------|---------|---------------------------|-----------------|--------|--|-----------|-----------|-------------------|------------------------------|
| 10 | 10.50 | | | | | | | SYMMETRIX DRILLING: No recovery, observed by driller as clayey GRAVEL (<i>continued</i>) | | | | N = 34 (6, 7, 8, 8, 9, 9) |
| 11 | | 0 | 0 | 0 | | | | | | | | |
| 12 | 12.00 | | | | | | | End of Borehole at 12.00 m | 12.00 | | | N = 30 (5, 5, 7, 8, 7, 8) |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|-----------|--------|---------|---------|----------|-----------------------------|--------------|--------------|--|------------|----------|
| REMARKS Hole cased 0.00-12.00m. | | | | | | WATER STRIKE DETAILS | | | | | |
| | | | | | | Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
| | | | | | | 5.40 | 5.40 | No | | | Slow |
| INSTALLATION DETAILS | | | | | | GROUNDWATER DETAILS | | | | | |
| | | | | | | Date | Hole Depth | Casing Depth | Depth to Water | Comments | |
| Date | Tip Depth | RZ Top | RZ Base | Type | | | | | | | |
| 06-06-19 | 12.00 | 1.00 | 12.00 | 50mm SP | 06-06-19 | 12.00 | 12.00 | 3.65 | Water level recorded at 5 mins after end of drilling | | |

IGSL RC FI 10M 21813.GPJ IGSL.GDT 15/6/19

RC01 Box 1 of 1 – 7.50-13.50m



RC05 Box 1 of 1 – 12.00-13.70m



Gas & Groundwater Monitoring



| | | | | | |
|-------------------------------------|-------------------------------------|--|--|--|--|
| Site Location | Airton Road, Talaght | | | | |
| Project No. | 21813 | | | | |
| Client | Barrett Mahoney Chartered Engineers | | | | |
| Date | 21-Jun-19 | | | | |
| Engineer | E. Kearney | | | | |
| Equipment | Dip meter and gas monitor | | | | |
| Peak / Steady State Readings | | | | | |
| Location ID | BH01 | | | | |
| Water Level (mbgl) | 4.05m | | | | |
| Gas Flow (l/hr) | | | | | |
| CH4 (%) | 0.0 | | | | |
| CO2 (%) | 0.4 | | | | |
| O2 (%) | 18.2 | | | | |
| CO (ppm) | 0.0 | | | | |
| H2S (ppm) | 0.0 | | | | |
| Balance (%) | 81.4 | | | | |
| Barometric Pressure (mbar) | 1016 | | | | |
| Weather/Temp. | Dry | | | | |
| Location ID | BH05 | | | | |
| Time (sec) | | | | | |
| Water Level (mbgl) | 4.40m | | | | |
| Gas Flow (l/hr) | | | | | |
| CH4 (%) | 0.0 | | | | |
| CO2 (%) | 0.2 | | | | |
| O2 (%) | 18.8 | | | | |
| CO (ppm) | 0.0 | | | | |
| H2S (ppm) | 0.0 | | | | |
| Balance (%) | 81.0 | | | | |
| Barometric Pressure (mbar) | 1016 | | | | |
| Weather/Temp. | Dry | | | | |
| Location ID | BH07 | | | | |
| Time (sec) | | | | | |
| Water Level (mbgl) | 3.25 | | | | |
| Gas Flow (l/hr) | | | | | |
| CH4 (%) | 0.0 | | | | |
| CO2 (%) | 0.2 | | | | |
| O2 (%) | 18.8 | | | | |
| CO (ppm) | 0.0 | | | | |
| H2S (ppm) | 0.0 | | | | |
| Balance (%) | 81.0 | | | | |
| Barometric Pressure (mbar) | 1013 | | | | |
| Weather/Temp. | Dry | | | | |
| Comments | | | | | |

Gas & Groundwater Monitoring









| | | | | | |
|-----------------------------------|-------------------------------------|--|--|--|--|
| Site Location | Airton Road, Tallaght | | | | |
| Project No. | 21813 | | | | |
| Client | Barrett Mahoney Chartered Engineers | | | | |
| Date | 04-Jul-19 | | | | |
| Engineer | E. Kearney | | | | |
| Equipment | Dip meter and gas monitor | | | | |
| | Peak / Steady State Readings | | | | |
| Location ID | BH01 | | | | |
| | | | | | |
| Water Level (mbgl) | 3.5m | | | | |
| Gas Flow (l/hr) | | | | | |
| CH4 (%) | 0.0 | | | | |
| CO2 (%) | 0.6 | | | | |
| O2 (%) | 18.0 | | | | |
| CO (ppm) | 0.0 | | | | |
| H2S (ppm) | 0.0 | | | | |
| Balance (%) | 81.4 | | | | |
| Barometric Pressure (mbar) | 1013 | | | | |
| Weather/Temp. | Dry | | | | |
| Location ID | BH05 | | | | |
| Time (sec) | | | | | |
| Water Level (mbgl) | 3.8 | | | | |
| Gas Flow (l/hr) | | | | | |
| CH4 (%) | 0.0 | | | | |
| CO2 (%) | 0.1 | | | | |
| O2 (%) | 18.8 | | | | |
| CO (ppm) | 0.0 | | | | |
| H2S (ppm) | 0.0 | | | | |
| Balance (%) | 81.1 | | | | |
| Barometric Pressure (mbar) | 1013 | | | | |
| Weather/Temp. | Dry | | | | |
| Location ID | BH07 | | | | |
| Time (sec) | | | | | |
| Water Level (mbgl) | 2.3 | | | | |
| Gas Flow (l/hr) | | | | | |
| CH4 (%) | 0.0 | | | | |
| CO2 (%) | 0.0 | | | | |
| O2 (%) | 20.1 | | | | |
| CO (ppm) | 0.0 | | | | |
| H2S (ppm) | 0.0 | | | | |
| Balance (%) | 79.9 | | | | |
| Barometric Pressure (mbar) | 1013 | | | | |
| Weather/Temp. | Dry | | | | |
| Comments | | | | | |

III Trial Pit Records

| | | |
|---|------------------|----------------------------|
|  1951 | TRIAL PIT RECORD | REPORT NUMBER 21813 |
|---|------------------|----------------------------|

| | | |
|---|--|----------------------------------|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP01 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. | | DATE STARTED 27/05/2019 |
| ENGINEER Barrett Mahony CE | | DATE COMPLETED 27/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----|--|---|-----------|-----------|----------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | CONCRETE with a plastic membrane underneath. |  | | | | | | | | |
| | Stiff dark brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a medium subangular to subrounded cobble content. |  | 0.20 | | | | | | | |
| 1.0 | |  | | | | AA118502 | B | 0.50 | | |
| | |  | | | | AA118503 | B | 1.00 | | |
| 2.0 | Very stiff black sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble and boulder content which are >600mm in size. |  | 2.10 | | | AA118504 | B | 2.00 | | |
| 3.0 | OBSTRUCTION End of Trial Pit at 2.90m |  | 2.90 | | ↓ (Seepage) | AA118505 | B | 2.90 | | |
| 4.0 | | | | | | | | | | |

Groundwater Conditions
Seepage at 2.80m.

Stability
Stable

General Remarks
CAT scanned location.

IGSL_TP_LOG_21813.GPJ_IGSL_GDT_06/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|--|--|--|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP02 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. ENGINEER Barrett Mahony CE | | CO-ORDINATES GROUND LEVEL (m) |
| | | DATE STARTED 27/05/2019 DATE COMPLETED 27/05/2019 |
| | | EXCAVATION METHOD JCB |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|---|--------|-----------|-----------|----------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | CONCRETE with a plastic membrane underneath. | | | | | | | | | |
| 0.20 | Stiff dark brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a medium subangular to subrounded cobble and boulder content which are >600mm in size. | | | | | | | | | |
| 0.50 | | | | | | AA113509 | B | 0.50 | | |
| 1.0 | | | | | | AA113510 | B | 1.00 | | |
| 2.0 | | | | | | AA113511 | B | 2.00 | | |
| 2.80 | | | | | | | | | | |
| 3.00 | Very stiff black sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble and boulder content which are >600mm in size. | | | | | | | | | |
| 3.00 | OBSTRUCTION End of Trial Pit at 3.00m | | | | ↓ (Seepage) | AA113512 | B | 3.00 | | |
| 4.0 | | | | | | | | | | |

Groundwater Conditions
Seepage at 2.90m.

Stability
Stable

General Remarks
CAT scanned location.

IGSL TP LOG 21813.GPJ IGSL_GDT 6/6/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|---|--|----------------------------------|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP03 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. | | DATE STARTED 24/05/2019 |
| ENGINEER Barrett Mahony CE | | DATE COMPLETED 24/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|--|--------|-----------|-----------|--------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | CONCRETE (Large bricks) | | 0.05 | | | | | | | |
| | TOPSOIL | | 0.30 | | | | | | | |
| | Stiff dark grey brown gravelly CLAY. Gravel is fine to coarse and subangular to subrounded. Has a medium subrounded cobble content. (Possible made ground). | | 0.50 | | | AA99943 | B | 0.50 | | |
| 1.0 | Stiff brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and angular. Has a low subangular to subrounded cobble and boulder content which are >600mm in size. (Possible made ground). | | | | | AA99944 | B | 1.00 | | |
| 2.0 | | | | | | AA99945 | B | 2.00 | | |
| | Very stiff black sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble and boulder content which are >600mm in size. | | 2.20 | | | AA99946 | B | 2.40 | | |
| | End of Trial Pit at 2.40m | | 2.40 | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT scanned location.

IGSL TP LOG 21813.GPJ IGSL_GDT 6/6/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|---|--|----------------------------------|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP04 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. | | DATE STARTED 24/05/2019 |
| ENGINEER Barrett Mahony CE | | DATE COMPLETED 24/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|--|--------|-----------|-----------|----------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | TOPSOIL | | | | | | | | | |
| | Firm brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. (Possibly made ground). | | 0.30 | | | AA99938 | B | 0.50 | | |
| | Stiff grey brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble and boulder content which are >400mm in size. (Possibly made ground). | | 0.80 | | | AA99939 | B | 1.00 | | |
| 1.0 | | | | | | | | | | |
| | Stiff black sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble and boulder content which are >700mm in size. | | 2.50 | | ↓ (Seepage) | AA99942 | B | 2.50 | | |
| | OBSTRUCTION End of Trial Pit at 2.90m | | 2.90 | | | AA99941 | B | 2.90 | | |
| 2.0 | | | | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |

Groundwater Conditions
Seepage at 1.80m.

Stability
Stable

General Remarks
CAT scanned location.

IGSL TP LOG 21813.GPJ IGSL_GDT 6/6/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|---|--|----------------------------------|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP05 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. | | DATE STARTED 27/05/2019 |
| ENGINEER Barrett Mahony CE | | DATE COMPLETED 27/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|--|--------|-----------|-----------|--------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | CONCRETE with a plastic membrane underneath. | | | | | | | | | |
| 0.20 | Stiff dark brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a medium subangular to subrounded cobble content. | | 0.20 | | | | | | | |
| 0.50 | | | | | | AA113513 | B | 0.50 | | |
| 1.0 | | | | | | AA113514 | B | 1.00 | | |
| 2.0 | | | | | | AA113515 | B | 2.00 | | |
| 2.50 | OBSTRUCTION End of Trial Pit at 2.50m | | 2.50 | | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT scanned location.

IGSL TP LOG 21813.GPJ IGSL.GDT 6/6/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|---|--|----------------------------------|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP06 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. | | DATE STARTED 27/05/2019 |
| ENGINEER Barrett Mahony CE | | DATE COMPLETED 27/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|--|--------|-----------|-----------|--------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | CONCRETE with a plastic membrane underneath. | | | | | | | | | |
| 0.20 | Stiff dark brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a medium subangular to subrounded cobble content. | | 0.20 | | | | | | | |
| 1.0 | | | | | | AA113516 | B | 0.50 | | |
| | | | | | | AA113517 | B | 1.00 | | |
| 2.0 | | | | | | AA113518 | B | 2.00 | | |
| 3.0 | Very stiff black sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble and boulder content which are >600mm in size. | | 2.90 | | | | | | | |
| 3.10 | OBSTRUCTION End of Trial Pit at 3.10m | | 3.10 | | | AA113519 | B | 3.00 | | |
| 4.0 | | | | | | | | | | |

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT scanned location.

IGSL TP LOG 21813.GPJ IGSL_GDT_6/6/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|---|--|----------------------------------|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP07 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. | | DATE STARTED 24/05/2019 |
| ENGINEER Barrett Mahony CE | | DATE COMPLETED 24/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|--|--------|-----------|-----------|--------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | TOPSOIL | | | | | | | | | |
| 0.30 | <p>MADE GROUND comprised of: Firm brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble content. Contains infrequent red brick fragments.</p> <p>Firm brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble content. (Possibly made ground).</p> <p>Stiff dark brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular. Has a low subangular to subrounded cobble and boulder content which are >600mm in size. (Possibly made ground).</p> | | 0.30 | | | | | | | |
| 0.60 | | | 0.60 | | | AA99935 | B | 0.50 | | |
| 0.90 | | | 0.90 | | | AA99936 | B | 1.00 | | |
| 2.0 | | | | | | | | | | |
| 2.30 | | | 2.30 | | | AA99937 | B | 2.00 | | |
| | OBSTRUCTION End of Trial Pit at 2.30m | | | | | | | | | |

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT scanned location.

IGSL TP LOG 21813.GPJ IGSL_GDT_6/6/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|---|--|----------------------------------|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP08 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT Airton Road Properties Ltd. | | DATE STARTED 24/05/2019 |
| ENGINEER Barrett Mahony CE | | DATE COMPLETED 24/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|-----------|----------------|------------|------|-------|-----------------|-------------------------|
| | | | Sample Ref | Type | Depth | | |
| 0.0 | | | | | | | |
| 0.10 | | | | | | | |
| 0.40 | | | | | | | |
| 0.90 | | | AA99931 | B | 0.50 | | |
| 1.0 | | | AA99932 | B | 1.00 | | |
| 2.0 | | | | | | | |
| 2.30 | | ↓ (Seepage) | AA99933 | B | 2.00 | | |
| 2.80 | | | AA99934 | B | 2.80 | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Groundwater Conditions
Seepage at 2.10m.

Stability
Stable

General Remarks
CAT scanned location.

IGSL TP LOG 21813.GPJ IGSL GDT 6/6/19



TRIAL PIT RECORD

REPORT NUMBER

21813

| | | |
|---|--|--|
| CONTRACT Airton Road, Tallaght | | TRIAL PIT NO. TP09 |
| LOGGED BY E. Kearney | | SHEET Sheet 1 of 1 |
| CLIENT ENGINEER Airton Road Properties Ltd. Barrett Mahony CE | | DATE STARTED 24/05/2019 DATE COMPLETED 24/05/2019 |
| CO-ORDINATES | | EXCAVATION METHOD JCB |
| GROUND LEVEL (m) | | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples | | | Vane Test (KPa) | Hand Penetrometer (KPa) |
|-----------|--|--------|-----------|-----------|----------------|------------|------|-------|-----------------|-------------------------|
| | | | | | | Sample Ref | Type | Depth | | |
| 0.0 | TARMACADAM | | 0.10 | | | | | | | |
| | MADE GROUND comprised of: Dense grey coarse angular GRAVEL. (HARDCORE). | | 0.30 | | | | | | | |
| | Firm to stiff brown slightly sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular. Has a low subangular to subrounded cobble and boulder content which are >500mm in size. (Possibly made ground). | | | | | AA99927 | B | 0.50 | | |
| 1.0 | | | | | | AA99928 | B | 1.00 | | |
| 2.0 | | | | | ↓ (Seepage) | AA99929 | B | 2.00 | | |
| 2.60 | Stiff black sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble and boulder content which are >700mm in size. | | 2.60 | | | AA99930 | B | 3.00 | | |
| 3.0 | | | | | | | | | | |
| 3.50 | End of Trial Pit at 3.50m | | 3.50 | | | | | | | |
| 4.0 | | | | | | | | | | |

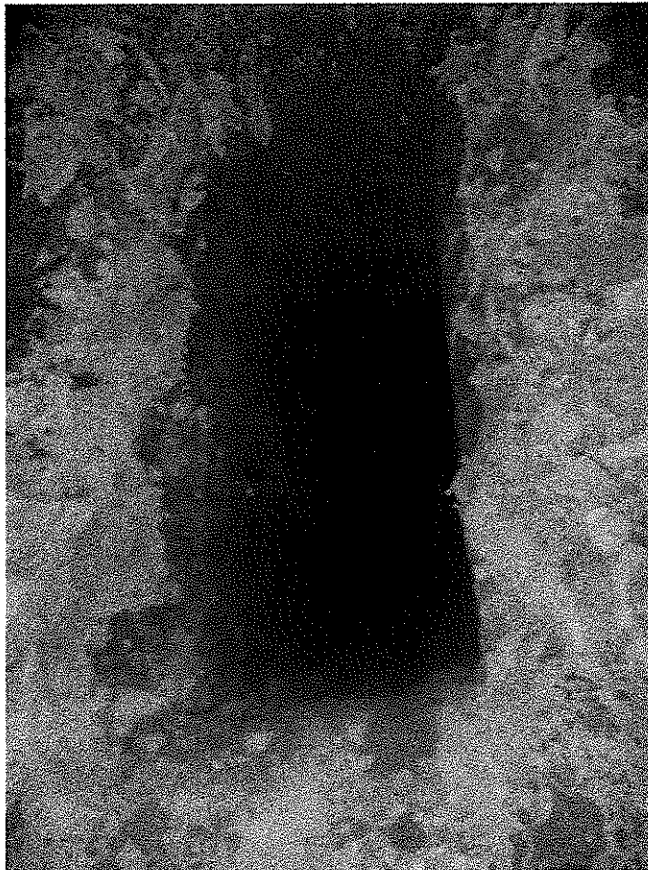
Groundwater Conditions
Seepage at 2.10m.

Stability
Stable

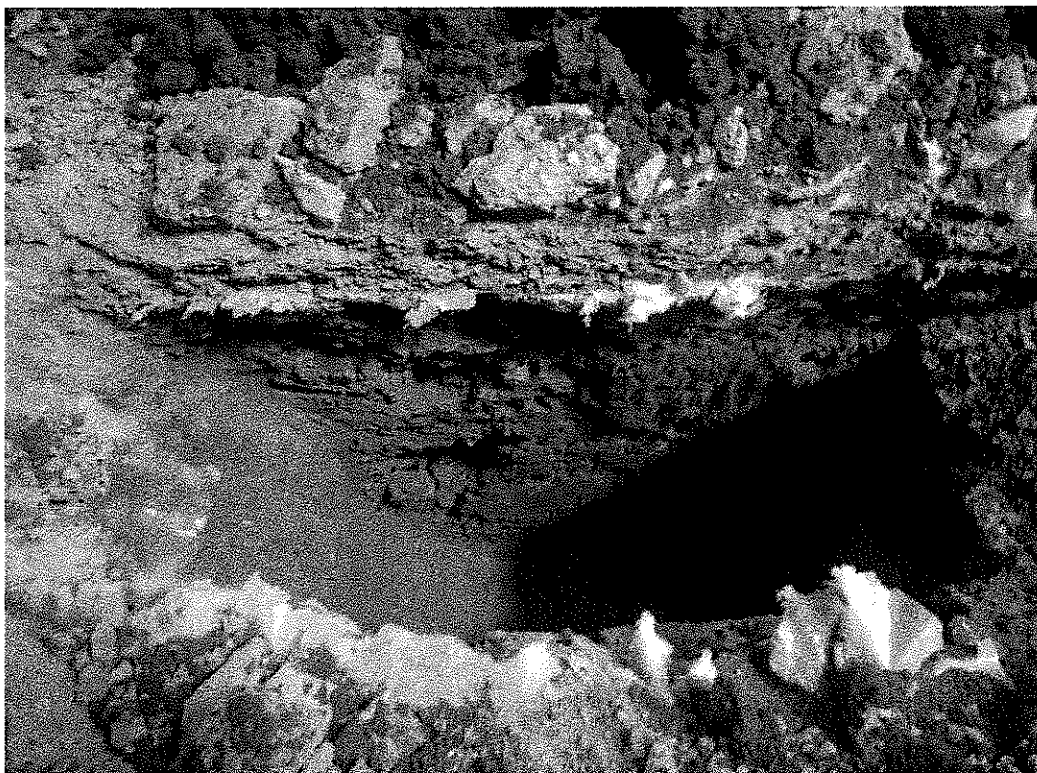
General Remarks
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IGSL TP LOG 21813.GPJ IGSL.GDT 6/8/19

TP01 Photo 1



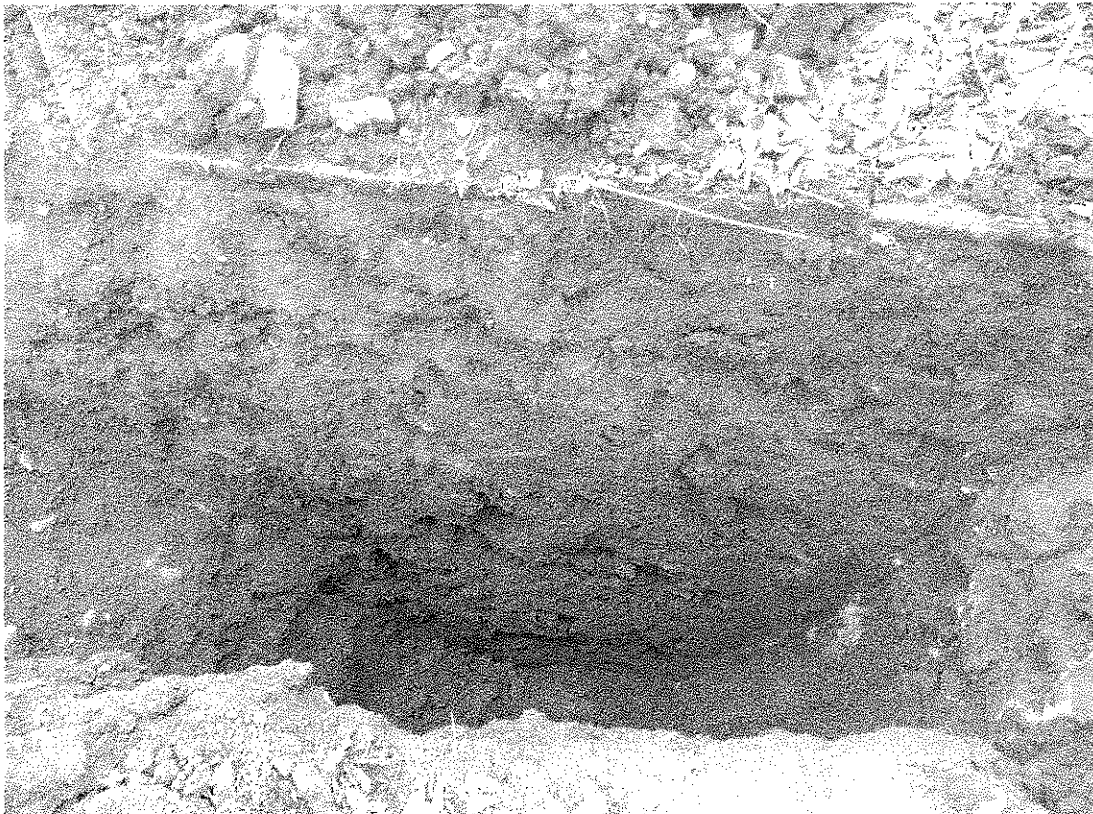
TP02 Photo 1 of 2



TP02 Photo 2 of 2



TP03 Photo 1 of 2



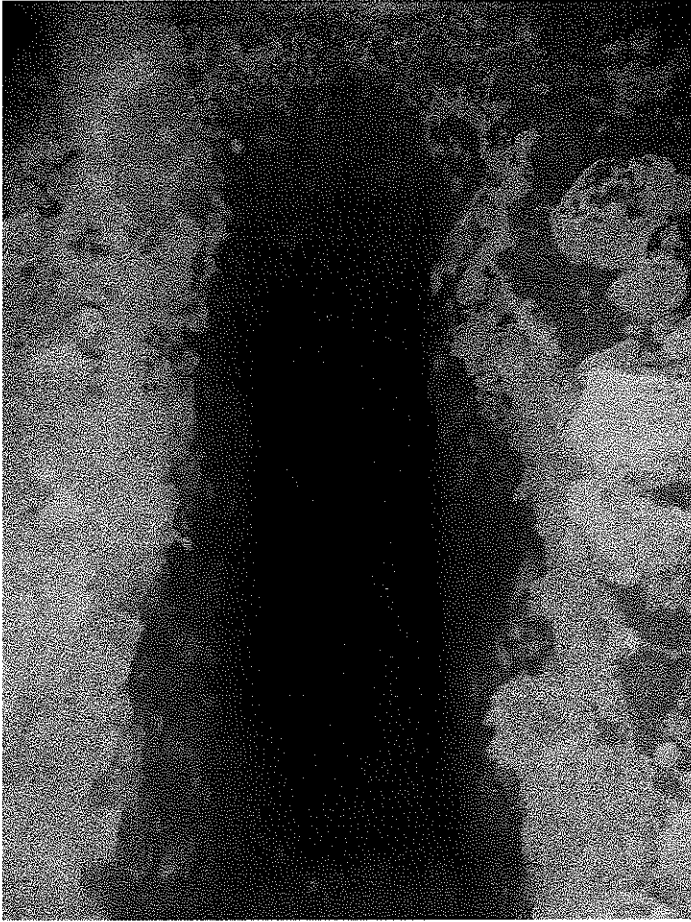
TP03 Photo 2 of 2



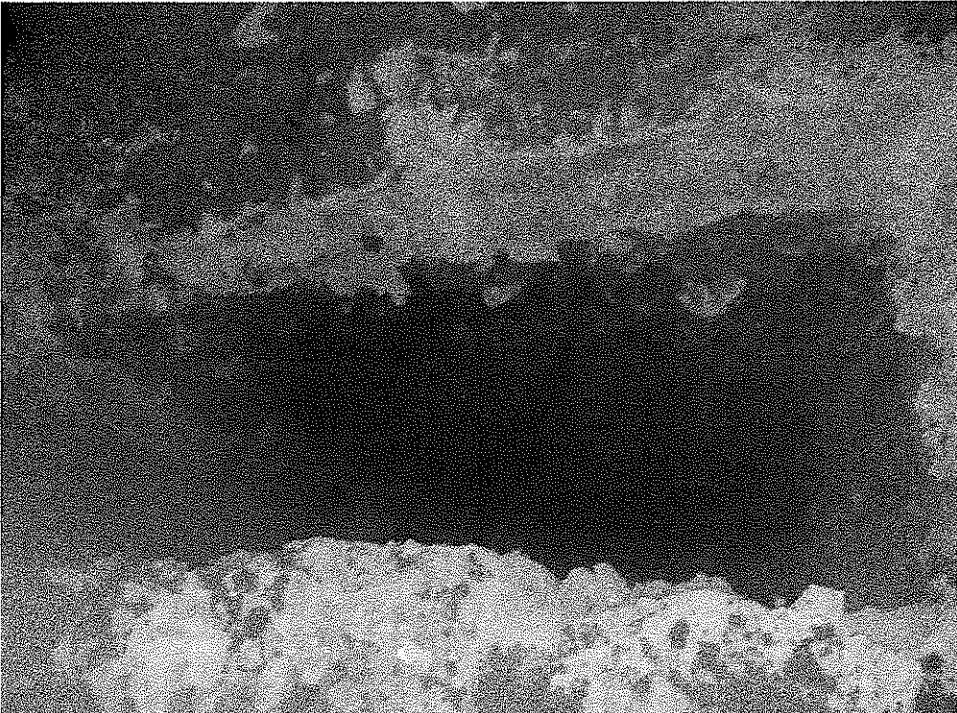
TP04 Photo 1



TP05 Photo 1



TP06 Photo 1



TP07 Photo 1 of 2



TP07 Photo 2 of 2



TP08 Photo 1 of 2



TP08 Photo 2 of 2



TP09 Photo 1 of 2



TP09 Photo 2 of 2



TP01 Photo 1



TP02 Photo 1 of 2



TP02 Photo 2 of 2



TP03 Photo 1 of 2



TP03 Photo 2 of 2



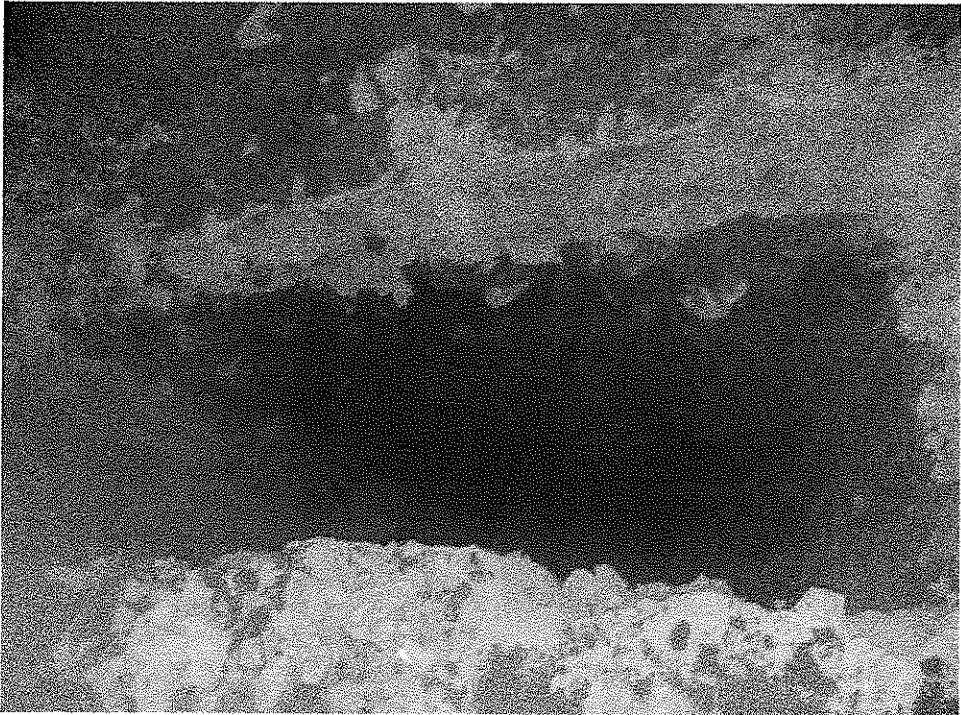
TP04 Photo 1



TP05 Photo 1



TP06 Photo 1



TP07 Photo 1 of 2



TP07 Photo 2 of 2



TP08 Photo 1 of 2



TP08 Photo 2 of 2



TP09 Photo 1 of 2



TP09 Photo 2 of 2



IV Plate Bearing Tests

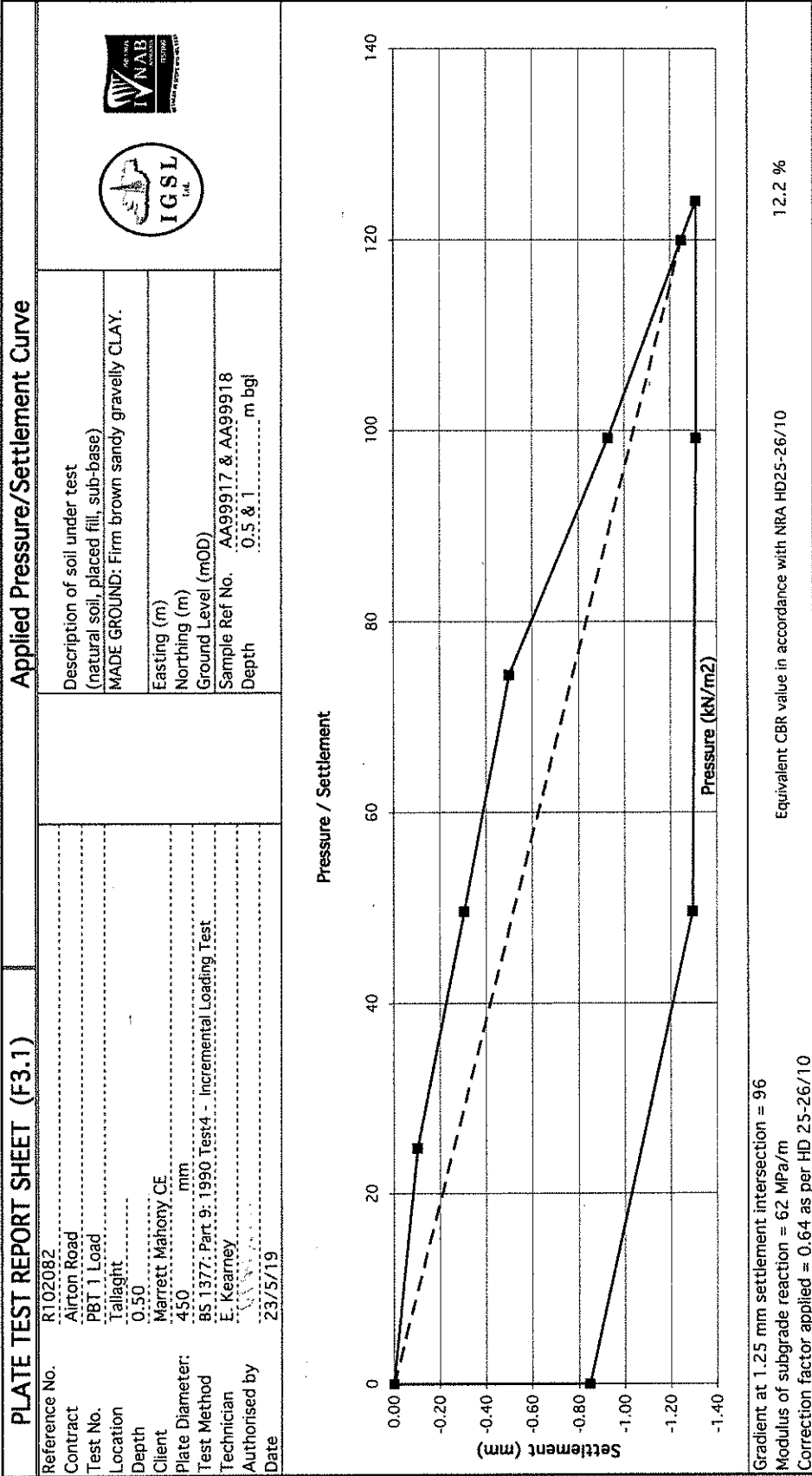
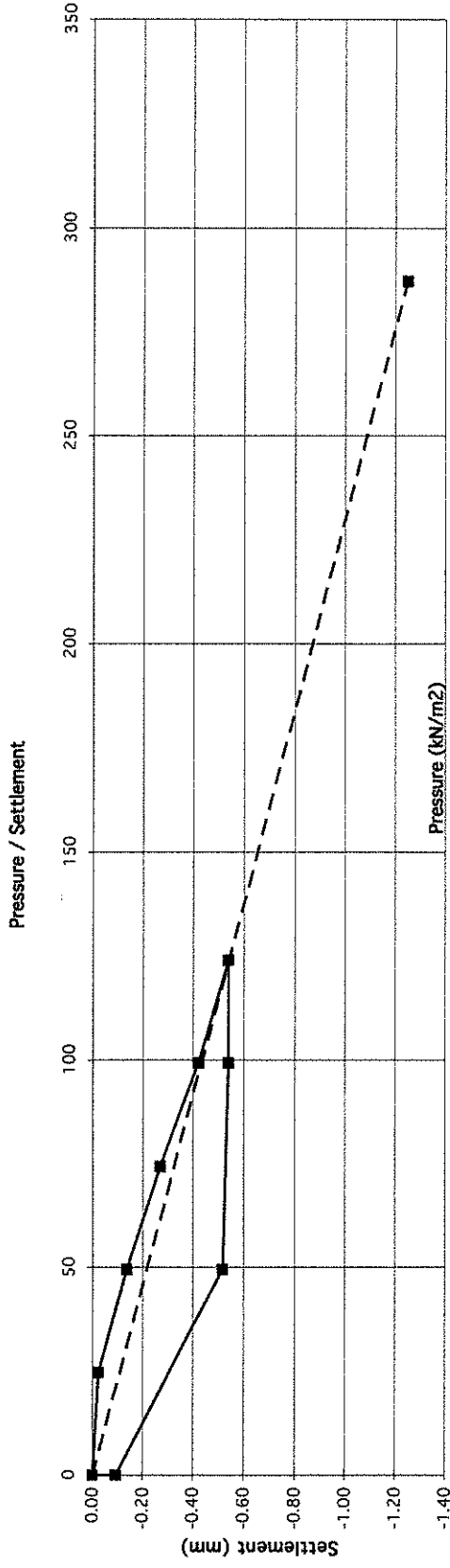


PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No. R102082
 Contract Airton Road
 Test No. PBT 1 Reload
 Location Tallaght
 Depth 0.50
 Client Mairrett Mahony CE
 Plate Diameter: 450 mm
 Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
 Technician E. Kearney
 Authorised by VAW
 Date 23/05/2019

Description of soil under test
 (natural soil, placed fill, sub-base)
 MADE GROUND: Firm brown sandy gravelly CLAY.
 Easting (m)
 Northing (m)
 Ground Level (mOD)
 Sample Ref No. AA99917 & AA99918
 Depth 0.5 & 1 m bgl



Gradient at 1.25 mm settlement intersection = 230
 Modulus of subgrade reaction = 148 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10

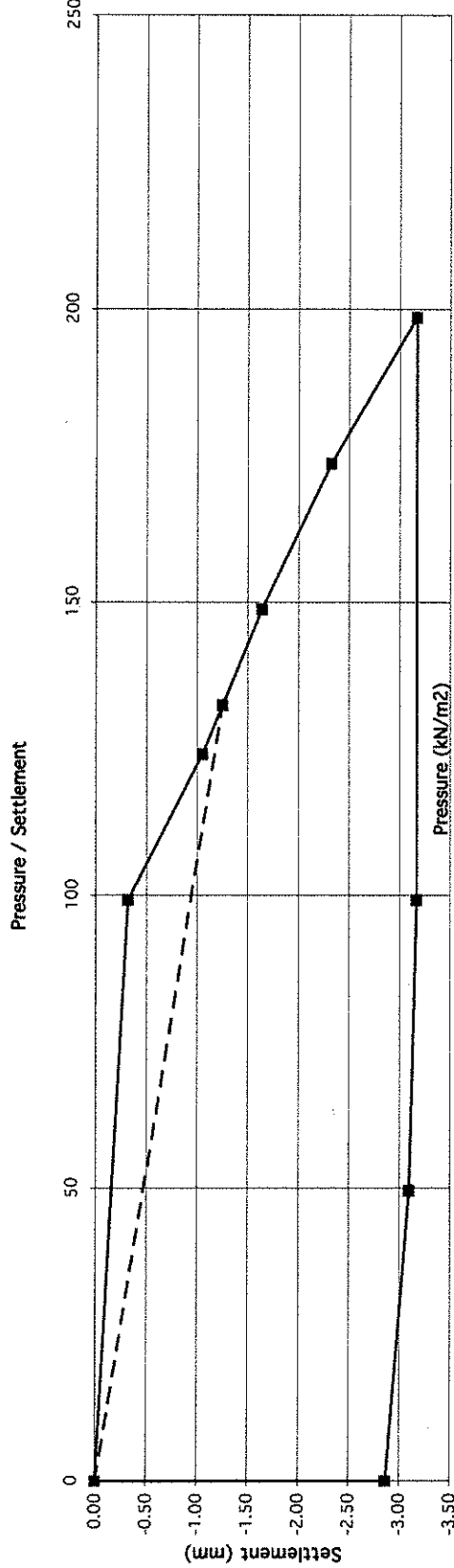
55.5 %

PLATE TEST REPORT SHEET (F3.1)

Reference No. R102082
 Contract Airton Road
 Test No. PBT 1 Reload
 Location Tallaght
 Depth 0.50
 Client Marrett Mahony CE
 Plate Diameter: 450 mm
 Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
 Technician E. Kearney
 Authorised by
 Date 23/05/2019

Applied Pressure/Settlement Curve



Description of soil under test
 (natural soil, placed fill, sub-base)
 MADE GROUND: Firm brown sandy gravelly CLAY.
 Easting (m)
 Northing (m)
 Ground Level (mOD)
 Sample Ref No. AA99919 & AA99920
 Depth 0.5 & 1 m bgl

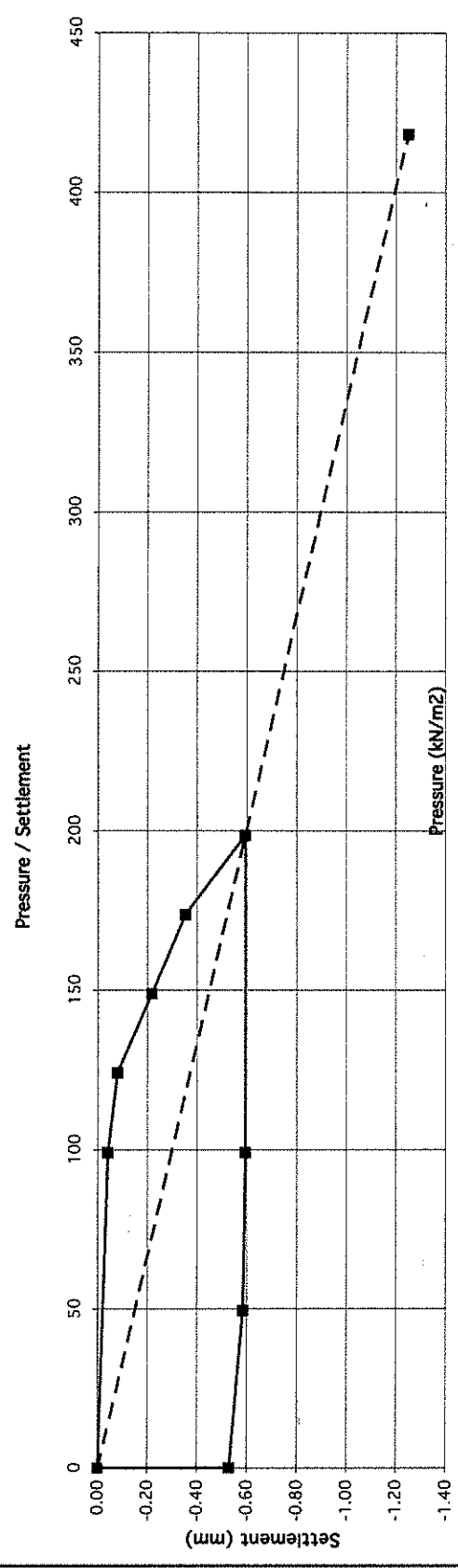


Gradient at 1.25 mm settlement intersection = 106
 Modulus of subgrade reaction = 68 MPa/m
 Correction factor applied = 0.64 as per HD 2.5-26/10

Equivalent CBR value in accordance with NRA HD25-26/10

14.5 %

| PLATE TEST REPORT SHEET (F3.1) | | Applied Pressure/Settlement Curve | |
|--------------------------------|--|---|---|
| Reference No. | R102083 | Description of soil under test (natural soil, placed fill, sub-base) |   |
| Contract | Airton Road | | |
| Test No. | PBT 2 Rebad | MADE GROUND: Firm brown sandy gravelly CLAY. | |
| Location | Tallaght | Easting (m) | |
| Depth | 0.50 | Northing (m) | |
| Client | Marrett Mahony CE | Ground Level (mOD) | |
| Plate Diameter: | 450 mm | Sample Ref No. | AA99919 & AA99920 |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test | Depth | 0.5 & 1 m bgl |
| Technician | E. Kearney | | |
| Authorised by | | | |
| Date | 23/05/2019 | | |



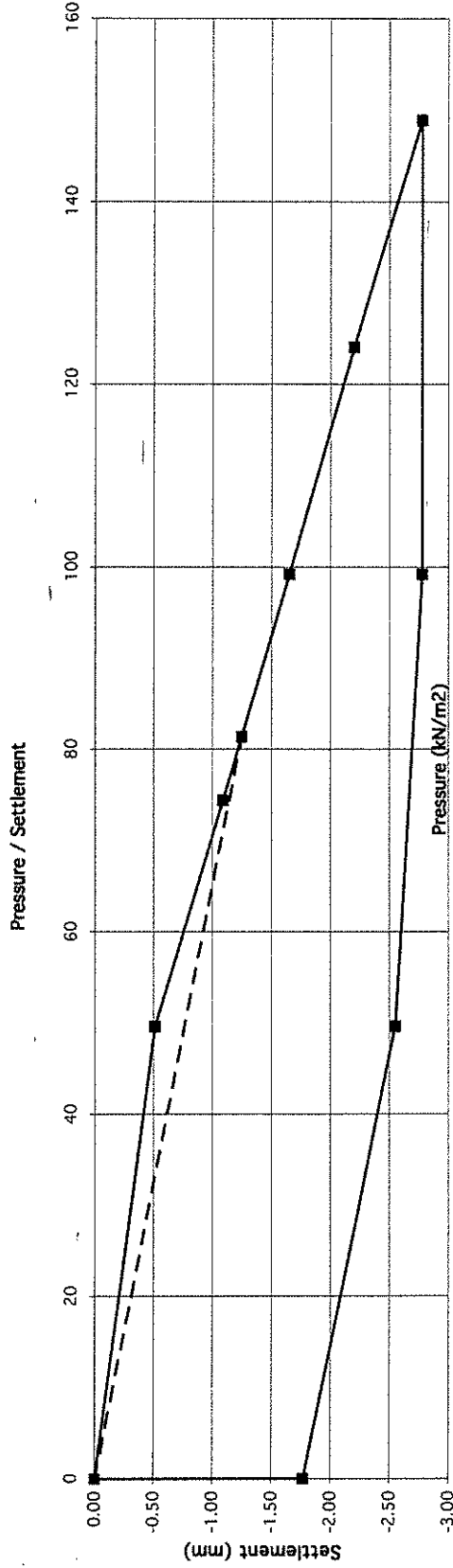
Gradient at 1.25 mm settlement intersection = 335
 Modulus of subgrade reaction = 215 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10
 Equivalent CBR value in accordance with NRA HD25-26/10 = 106.4 %

PLATE TEST REPORT SHEET (F3.1)

Reference No. R102084
 Contract Airton Road
 Test No. PBT 3 Load
 Location Tallaght
 Depth 0.50
 Client Marrett Mahony CE
 Plate Diameter: 450 mm
 Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
 Technician E. Kearney
 Authorised by
 Date 23/05/2019

Applied Pressure/Settlement Curve

Description of soil under test
 (natural soil, placed fill, sub-base)
 MADE GROUND: Firm brown sandy gravelly CLAY.
 Easting (m)
 Northing (m)
 Ground Level (mOD)
 Sample Ref No. AA94949 & AA94950
 Depth 0.5 & 1 m bgl



Gradient at 1.25 mm settlement intersection = 65
 Modulus of subgrade reaction = 42 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10

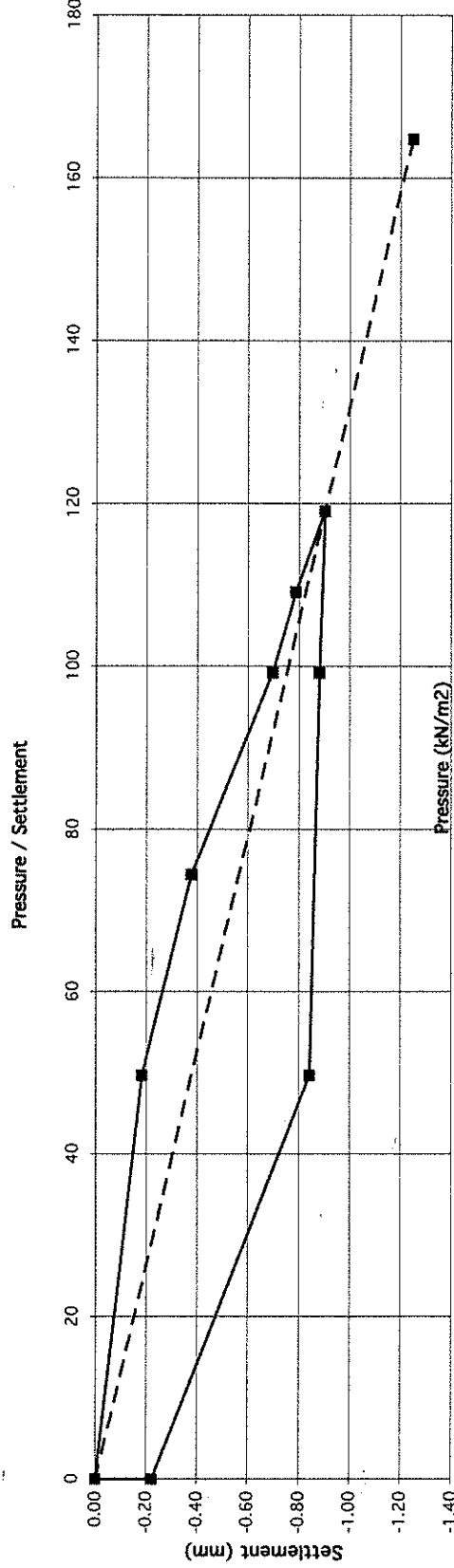
6.2 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No. R102084
 Contract Airton Road
 Test No. PBT 3 Reload
 Location Tallaght
 Depth 0.50
 Client Marrett Mahony CE
 Plate Diameter: 450 mm
 Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
 Technician E. Kearney
 Authorised by
 Date 23/05/2019

Description of soil under test
 (natural soil, placed fill, sub-base)
 MADE GROUND: Firm brown sandy gravelly CLAY.
 Easting (m)
 Northing (m)
 Ground Level (MOD)
 Sample Ref No. AA94949 & AA94950
 Depth 0.5 & 1 m bgl



Gradient at 1.25 mm settlement intersection = 132
 Modulus of subgrade reaction = 85 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10

21.2 %

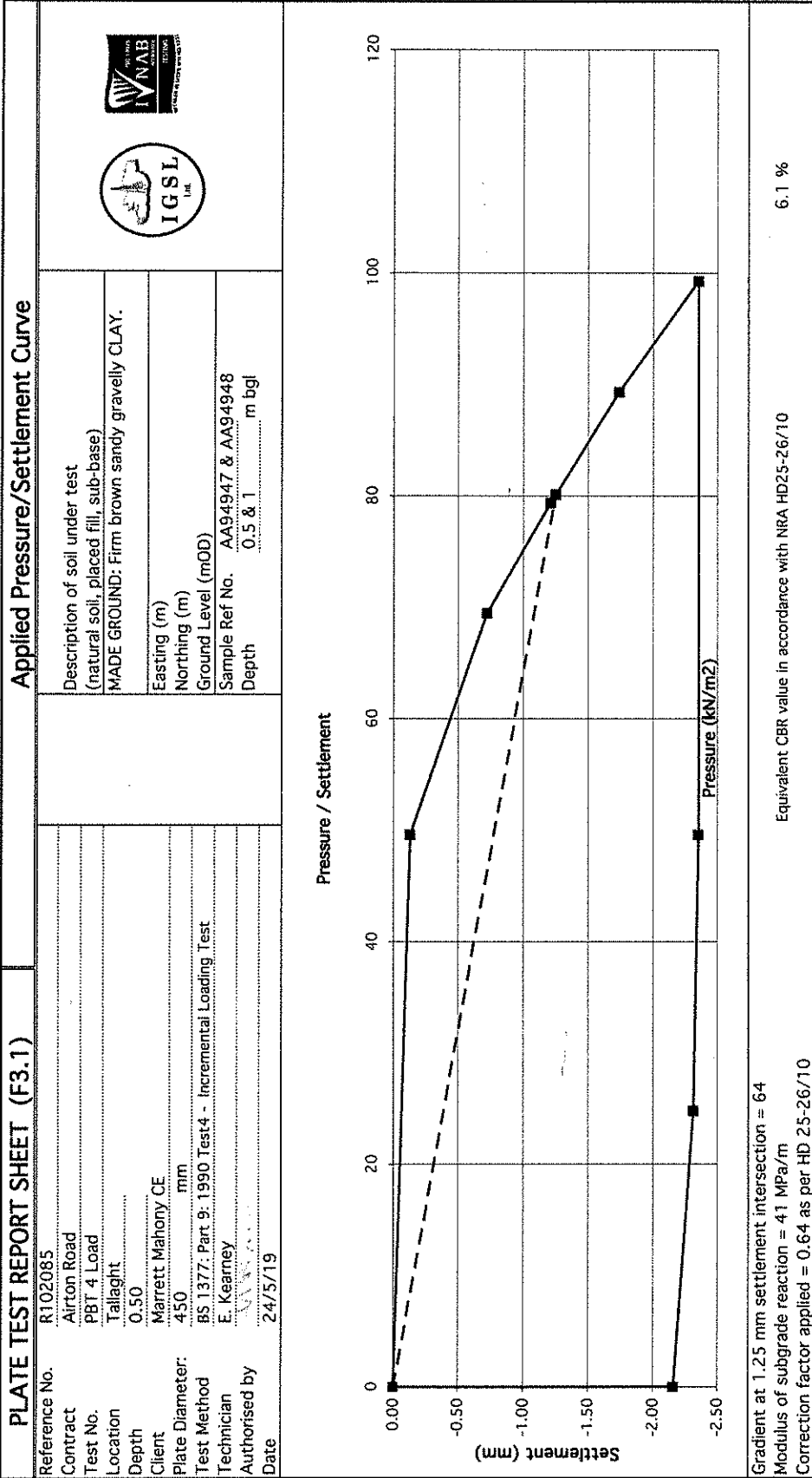


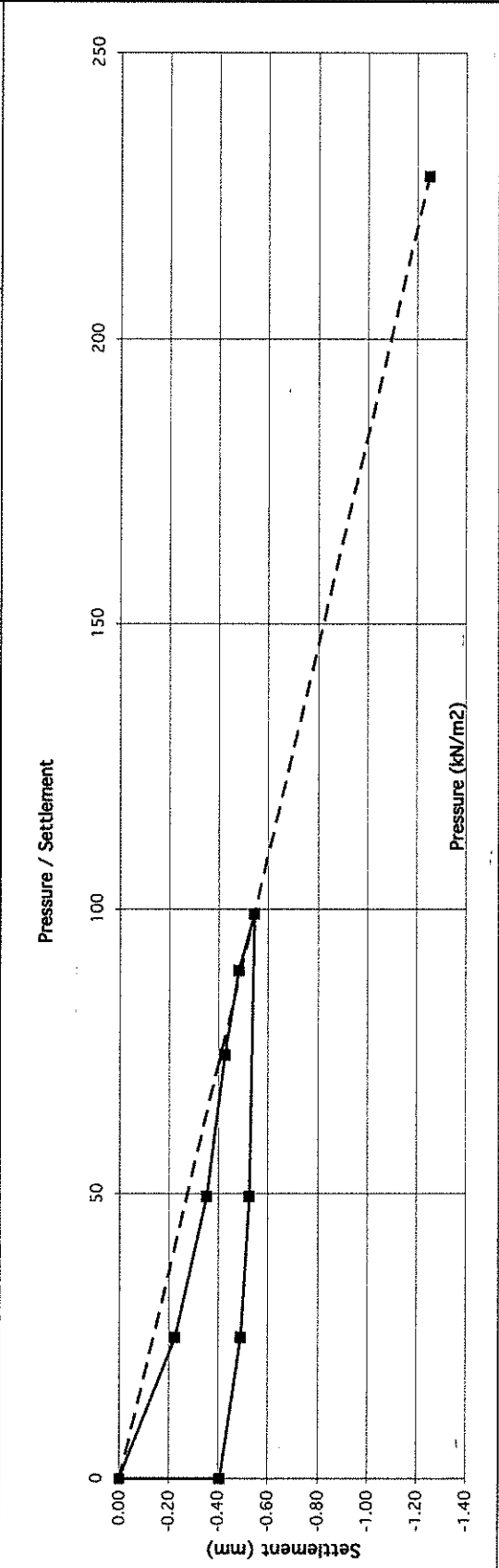


PLATE TEST REPORT SHEET (F3.1) **Applied Pressure/Settlement Curve**

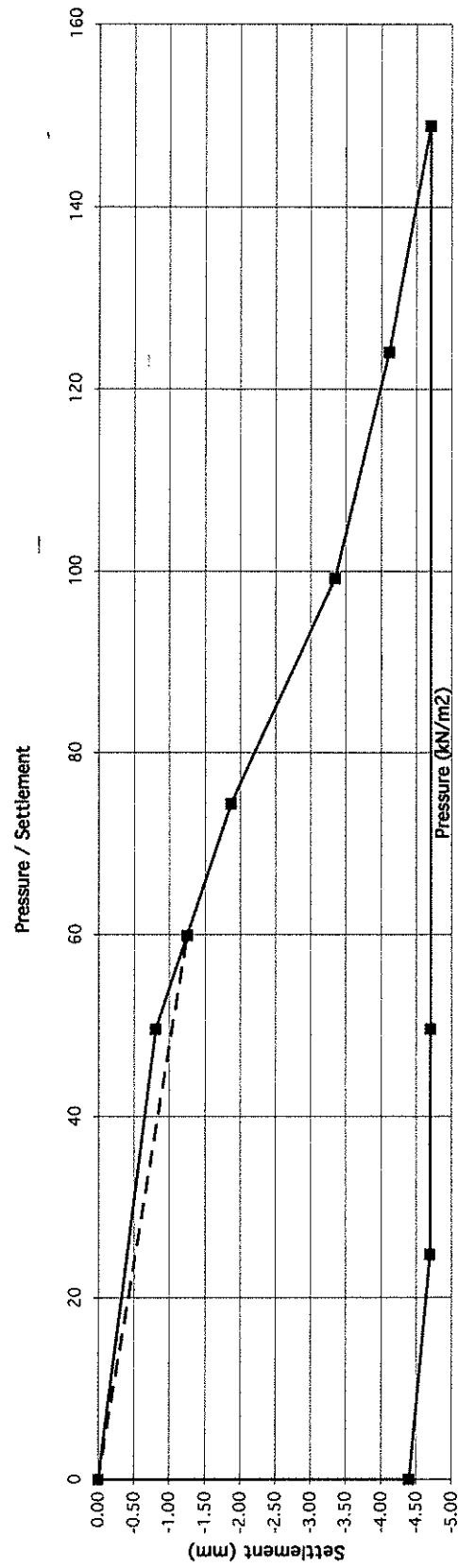
| | | |
|---|---|---|
| Reference No. R102085 Contract Airton Road Test No. PBT 4 Rebad Location Tallaght Depth 0.50 Client Marrett Mahony CE Plate Diameter: 450 mm Test Method 85 1377: Part 9: 1990 Test4 - Incremental Loading Test Technician E. Kearney Authorised by [Signature] Date 24/05/2019 | Description of soil under test (natural soil, placed fill, sub-base) MADE GROUND: Firm brown sandy gravelly CLAY. Easting (m) Northing (m) Ground Level (mOD) Sample Ref No. AA94947 & AA94948 Depth 0.5 & 1 m bgl |   |
|---|---|---|



Gradient at 1.25 mm settlement intersection = 183
 Modulus of subgrade reaction = 117 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

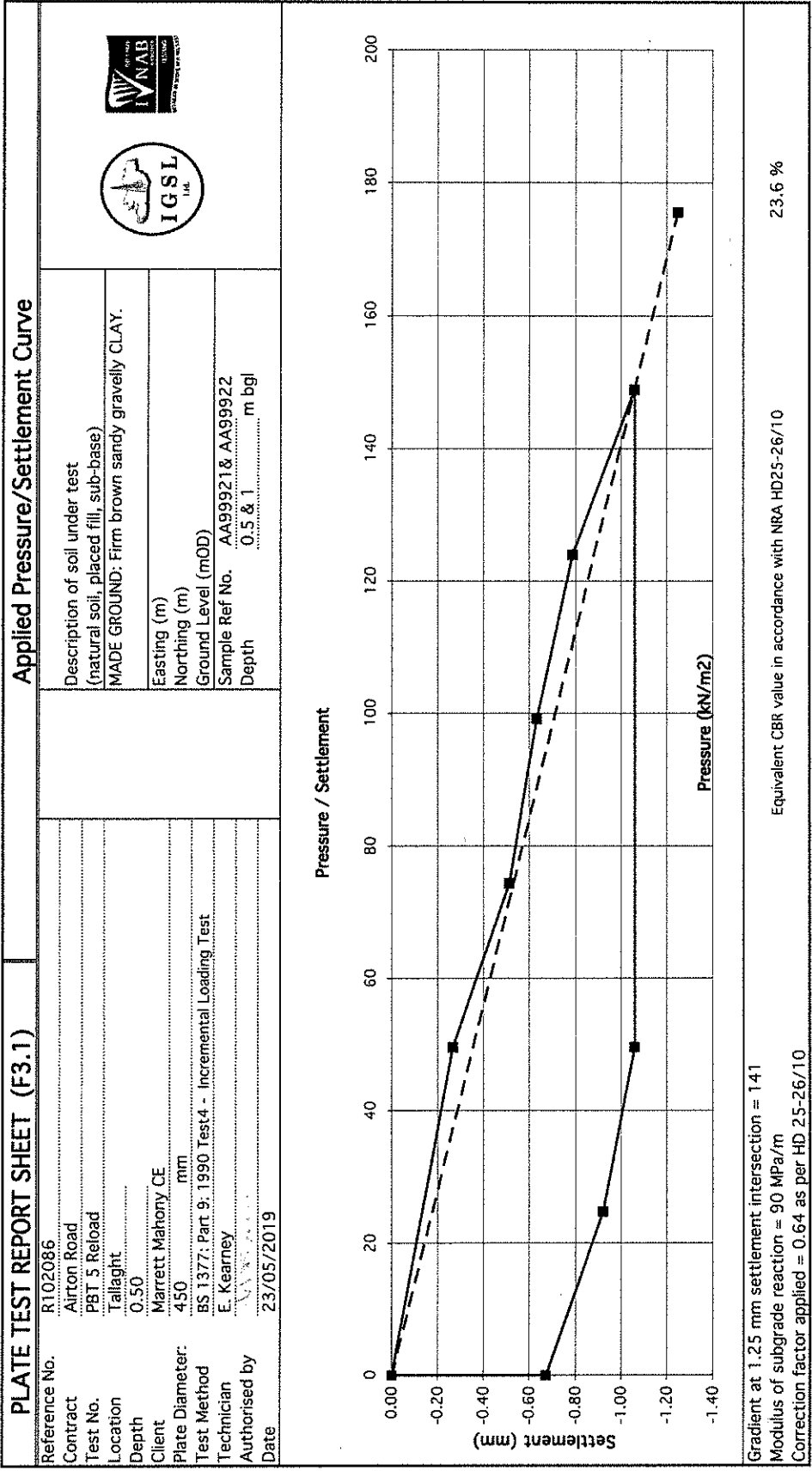
Equivalent CBR value in accordance with NRA HD25-26/10 37.3 %



| PLATE TEST REPORT SHEET (F3.1) | | Applied Pressure/Settlement Curve | |
|--------------------------------|--|---|-------------------|
| Reference No. | R102086 | Description of soil under test (natural soil, placed fill, sub-base) | |
| Contract | Airton Road | MADE GROUND: Firm brown sandy gravelly CLAY. | |
| Test No. | PBT 5 Load | | |
| Location | Tallaght | | |
| Depth | 0.50 | | |
| Client | Marrett Mahony CE | Easting (m) | |
| Plate Diameter: | 450 mm | Northing (m) | |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test | Ground Level (mOD) | |
| Technician | E. Kearney | Sample Ref No. | AA99921 & AA99922 |
| Authorised by | | Depth | 0.5 & 1 m bgl |
| Date | 23/05/2019 | | |

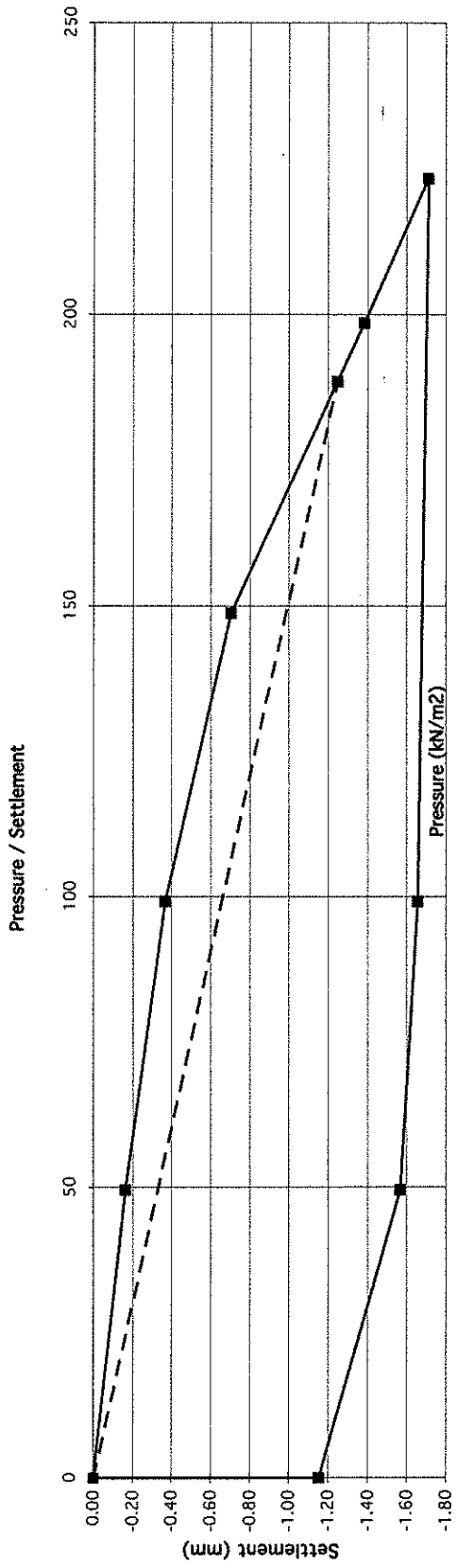


Gradient at 1.25 mm settlement intersection = 48
 Modulus of subgrade reaction = 31 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 **3.7 %**



| PLATE TEST REPORT SHEET (F3.1) | | Applied Pressure/Settlement Curve | |
|--|--|---|---|
| Reference No. R102087 | Contract Ailton Road | Description of soil under test (natural soil, placed fill, sub-base) MADE GROUND: Firm brown sandy gravelly CLAY. |   |
| Test No. PBT 6 Load | Location Tallaght | | |
| Location Tallaght | Depth 0.50 | Easting (m) | |
| Depth 0.50 | Client Marrett Mahony CE | Northing (m) | |
| Client Marrett Mahony CE | Plate Diameter: 450 mm | Ground Level (mOD) | |
| Plate Diameter: 450 mm | Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test | Sample Ref No. AA99923 & AA99924 | |
| Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test | Technician E. Kearney | Depth 0.5 & 1 m bgl | |
| Technician E. Kearney | Authorised by | | |
| Authorised by | Date 23/05/2019 | | |
| Date 23/05/2019 | | | |



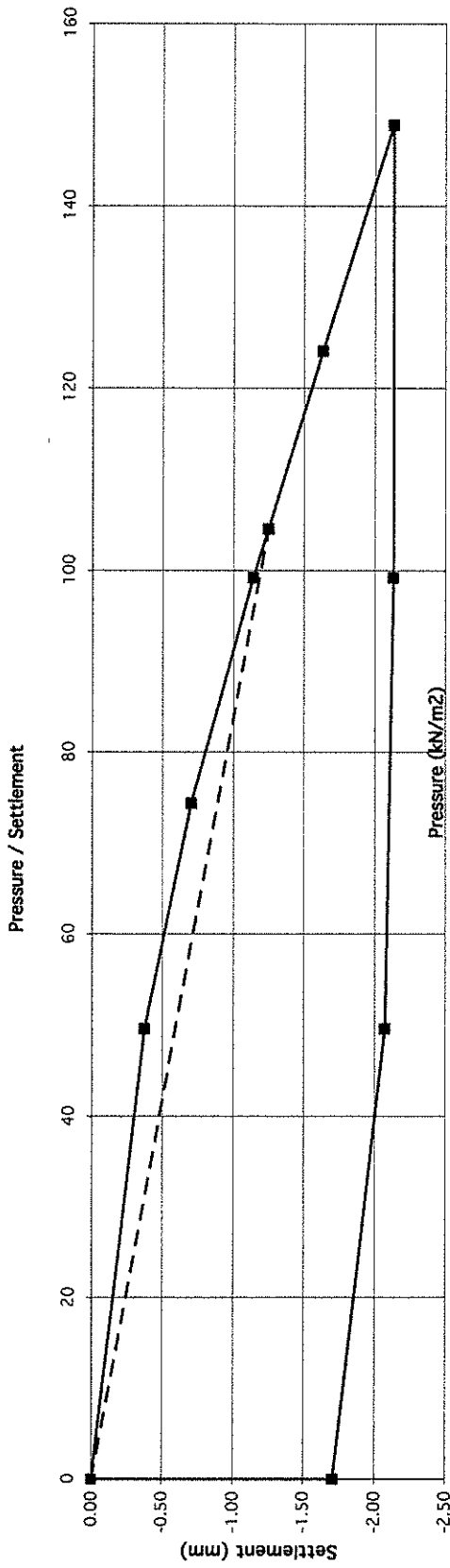
Gradient at 1.25 mm settlement intersection = 151
 Modulus of subgrade reaction = 97 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10
 Equivalent CBR value in accordance with NRA HD25-26/10 26.7 %

PLATE TEST REPORT SHEET (F3.1)

Reference No. R102088
 Contract Airton Road
 Test No. PBT 7 Load
 Location Tallaght
 Depth 0.50
 Client Marrett Mahony CE
 Plate Diameter: 450 mm
 Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
 Technician E. Kearney
 Authorised by
 Date 24/05/2019

Applied Pressure/Settlement Curve

Description of soil under test
 (natural soil, placed fill, sub-base)
 MADE GROUND: Firm brown sandy gravelly CLAY.
 Easting (m)
 Northing (m)
 Ground Level (MOD)
 Sample Ref No. AA99925 & AA99926
 Depth 0.5 & 1 m bgl



Gradient at 1.25 mm settlement intersection = 84
 Modulus of subgrade reaction = 54 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10

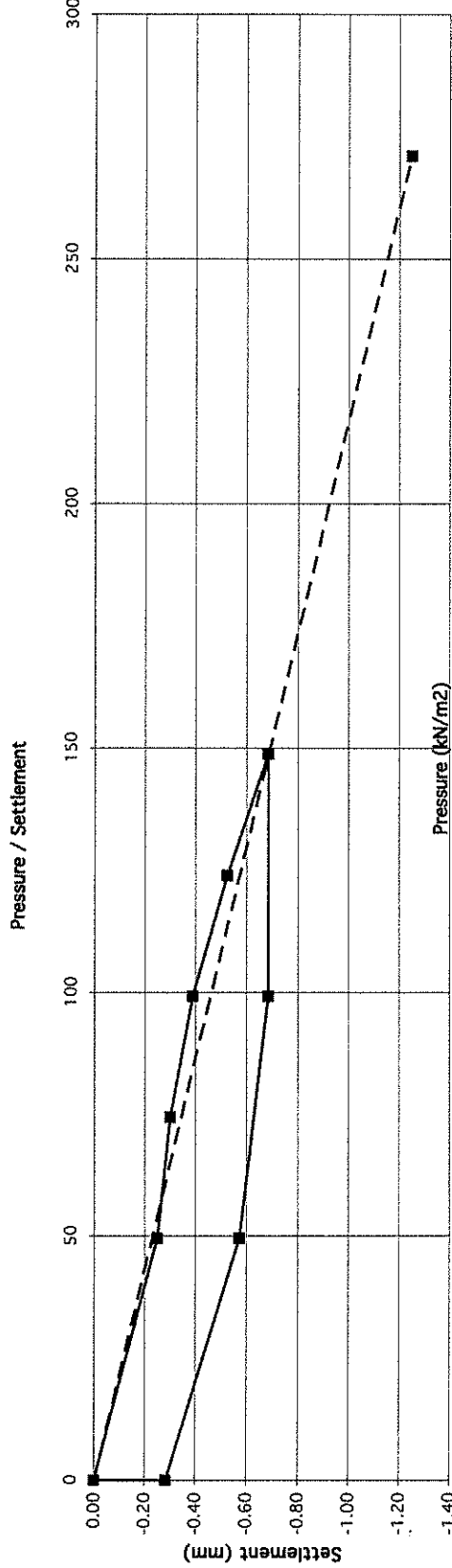
9.6 %

PLATE TEST REPORT SHEET (F3.1)

Reference No. R102088
 Contract Airton Road
 Test No. PBT 7 Rebad
 Location Tallaght
 Depth 0.50
 Client Marrett Mahony CE
 Plate Diameter: 450 mm
 Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
 Technician E. Kearney
 Authorised by [Signature]
 Date 24/05/2019

Applied Pressure/Settlement Curve

Description of soil under test
 (natural soil, placed fill, sub-base)
 MADE GROUND: Firm brown sandy gravelly CLAY.
 Easting (m)
 Northing (m)
 Ground Level (mOD)
 Sample Ref No. AA99925 & AA99926
 Depth 0.5 & 1 m bgl



Gradient at 1.25 mm settlement intersection = 217
 Modulus of subgrade reaction = 139 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10

50.2 %

Appendix V Percolation

Soakaway Design f-value from field tests (F2C) IGSL

Contract: Airton Rd, Tallaght
 Test No. SA01
 Client Barrett Mahony CE
 Date: 28.05.2019

Contract No. 21813

Summary of ground conditions

| from | to | Description | Ground water |
|------|------|--|--------------|
| 0.00 | 0.30 | TOPSOIL | Dry |
| 0.30 | 0.90 | MADE GROUND: Firm brown mottled grey sandy gravelly CLAY. Has a low subangular to subrounded cobble content. Contains infrequent plastic and concrete block fragments. | |
| 0.90 | 2.00 | Stiff brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble content. | |

Field Data

| Depth to Water (m) | Elapsed Time (min) |
|--------------------|--------------------|
| 1.40 | 0.00 |
| 1.40 | 1.00 |
| 1.40 | 2.00 |
| 1.40 | 3.00 |
| 1.40 | 4.00 |
| 1.40 | 5.00 |
| 1.40 | 10.00 |
| 1.40 | 15.00 |
| 1.40 | 20.00 |
| 1.40 | 25.00 |
| 1.40 | 30.00 |
| 1.40 | 40.00 |
| 1.40 | 60.00 |

Field Test

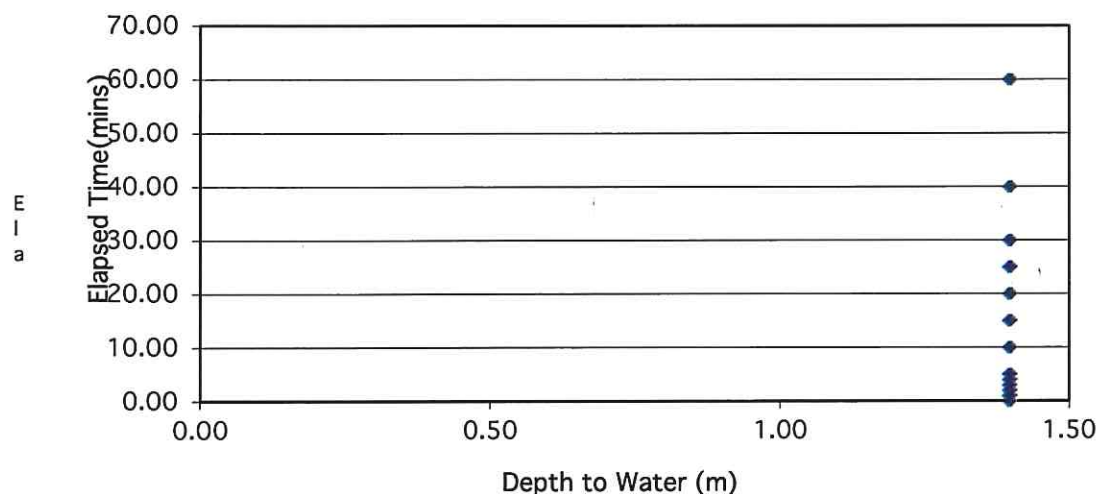
| | | |
|--|-------|----------------|
| Depth of Pit (D) | 2.00 | m |
| Width of Pit (B) | 0.30 | m |
| Length of Pit (L) | 1.20 | m |
| Initial depth to Water = | 1.40 | m |
| Final depth to water = | 1.40 | m |
| Elapsed time (mins)= | 60.00 | |
| Top of permeable soil | | m |
| Base of permeable soil | | m |
| Base area= | 0.36 | m ² |
| *Av. side area of permeable stratum over test period | 1.8 | m ² |
| Total Exposed area = | 2.16 | m ² |

*Av. side area of permeable stratum over test period

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0 m/min or 0 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design f -value from field tests (F2C) IGSL

Contract: Airton Rd, Tallaght
 Test No. SA02
 Client Barrett Mahony CE
 Date: 28.05.2019

Contract No. 21813

Summary of ground conditions

| from | to | Description | Ground water |
|------|------|--|--------------|
| 0.00 | 0.20 | TOPSOIL | Dry |
| 0.20 | 0.90 | MADE GROUND: Firm brown mottled grey sandy gravelly CLAY. Has a low subangular to subrounded cobble content. Contains infrequent red brick fragments. | |
| 0.90 | 2.00 | Stiff brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a low subangular to subrounded cobble content. | |

Field Data

Field Test

| Depth to Water (m) | Elapsed Time (min) |
|--------------------|--------------------|
| 1.10 | 0.00 |
| 1.10 | 1.00 |
| 1.10 | 2.00 |
| 1.10 | 3.00 |
| 1.10 | 4.00 |
| 1.10 | 5.00 |
| 1.10 | 10.00 |
| 1.10 | 15.00 |
| 1.10 | 20.00 |
| 1.10 | 25.00 |
| 1.10 | 30.00 |
| 1.10 | 40.00 |
| 1.10 | 60.00 |

Depth of Pit (D) = 2.00 m
 Width of Pit (B) = 0.30 m
 Length of Pit (L) = 1.50 m

Initial depth to Water = 1.10 m
 Final depth to water = 1.10 m
 Elapsed time (mins) = 60.00

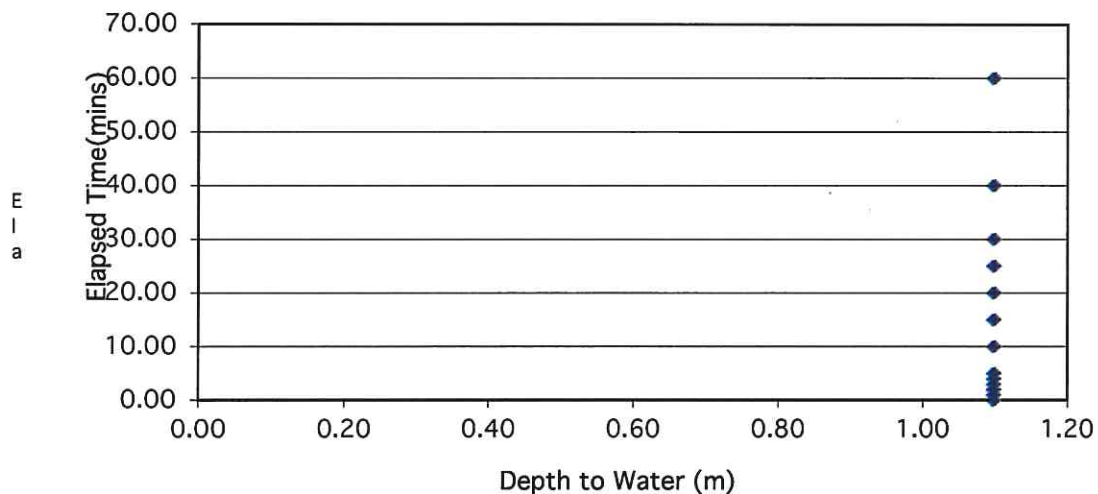
Top of permeable soil = m
 Base of permeable soil = m

Base area = 0.45 m²
 *Av. side area of permeable stratum over test period = 3.24 m²
 Total Exposed area = 3.69 m²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f = 0 m/min or 0 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design

f -value from field tests

(F2C) IGSL

Contract: Airtton Rd, Tallaght
 Test No. SA03
 Client Barrett Mahony CE
 Date: 28.05.2019

Contract No. 21813

Summary of ground conditions

| from | to | Description | Ground water |
|------|------|--|--------------|
| 0.00 | 0.20 | Concrete | Dry |
| 0.20 | 2.00 | MADE GROUND: Stiff brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse and subangular to subrounded. Has a medium subangular to subrounded cobble content. | |
| | | | |

Field Data

| Depth to Water (m) | Elapsed Time (min) |
|--------------------|--------------------|
| 1.04 | 0.00 |
| 1.04 | 1.00 |
| 1.04 | 2.00 |
| 1.04 | 3.00 |
| 1.04 | 4.00 |
| 1.04 | 5.00 |
| 1.04 | 10.00 |
| 1.04 | 15.00 |
| 1.04 | 20.00 |
| 1.04 | 25.00 |
| 1.04 | 30.00 |
| 1.04 | 40.00 |
| 1.04 | 60.00 |

Field Test

| | | |
|--|-------|----------------|
| Depth of Pit (D) | 2.00 | m |
| Width of Pit (B) | 0.30 | m |
| Length of Pit (L) | 1.30 | m |
| Initial depth to Water = | 1.04 | m |
| Final depth to water = | 1.04 | m |
| Elapsed time (mins)= | 60.00 | |
| Top of permeable soil | | m |
| Base of permeable soil | | m |
| Base area= | 0.39 | m ² |
| *Av. side area of permeable stratum over test period | 3.072 | m ² |
| Total Exposed area = | 3.462 | m ² |

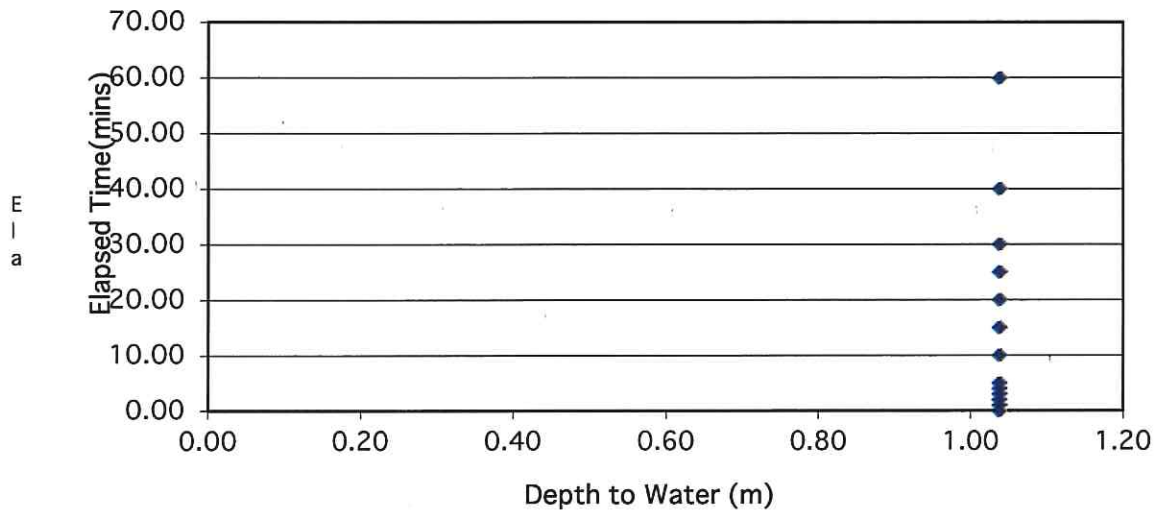
*Av. side area of permeable stratum over test period

Infiltration rate (f) =

Volume of water used/unit exposed area / unit time

f= 0 m/min or 0 m/sec

Depth of water vs Elapsed Time (mins)



Appendix VI Laboratory

a. Geotechnical

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2*, 4.3, 4.4 & 5.3



Report No. **R102259** Contract No. 21813 Contract Name: Airtown Road, Tallaght, Dublin
Customer Barrett Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2
Samples Received: 06/06/19 Date Tested: 07/06/19

| BH/TP | Sample No. | Depth (m) | Lab. Ref | Sample Type | Moisture Content % | Liquid Limit % | Plastic Limit % | Plasticity Index | % <425µm | Preparation | Liquid Limit Clause | Classification (BS5930) | Description |
|-------|------------|-----------|----------|-------------|--------------------|----------------|-----------------|------------------|----------|-------------|---------------------|-------------------------|---|
| TP01 | AA99929 | 2.0 | A19/2420 | B | 11 | 33 | 16 | 17 | 57 | WS | 4.4 | C L | Grey/brown sandy gravelly CLAY |
| TP02 | AA113512 | 3.0 | A19/2422 | B | 18 | 33 | 16 | 17 | 30 | WS | 4.4 | C L | Black slightly sandy, gravelly, CLAY |
| TP04 | AA99940 | 2.0 | A19/2425 | B | 13 | 36 | 17 | 19 | 47 | WS | 4.4 | C I | Dark brown sandy gravelly CLAY |
| TP06 | AA113517 | 1.0 | A19/2432 | B | 12 | 34 | 17 | 17 | 55 | WS | 4.4 | C L | Dark brown slightly sandy, gravelly, CLAY with some cobbles |
| TP09 | AA99928 | 1.0 | A19/2440 | B | 15 | 36 | 18 | 18 | 53 | WS | 4.4 | C I | Brown sandy gravelly CLAY |
| BH01 | AA38091 | 4.0 | A19/2442 | B | 8.1 | 30 | 16 | 14 | 53 | WS | 4.4 | C L | Grey clayey, sandy, GRAVEL with many cobbles |
| BH02 | AA38096 | 4.0 | A19/2443 | B | 9.8 | 25 | NP | NP | 58 | WS | 4.4 | | Black slightly sandy, slightly gravelly, SILT |
| BH03 | AA117470 | 3.0 | A19/2444 | B | 8.0 | 27 | 14 | 13 | 46 | WS | 4.4 | C L | Black sandy gravelly CLAY |
| BH03 | AA117472 | 5.0 | A19/2445 | B | 9.0 | 32 | 15 | 17 | 60 | WS | 4.4 | C L | Black slightly sandy, gravelly, CLAY |
| BH04 | AA10699 | 4.0 | A19/2456 | B | 7.9 | 28 | 15 | 13 | 34 | WS | 4.4 | C L | Black sandy gravelly CLAY |
| BH05 | AA111406 | 6.0 | A19/2457 | 0 | 9.6 | 25 | NP | NP | 41 | WS | 4.4 | | Black slightly sandy, gravelly, SILT |
| BH06 | AA114412 | 4.0 | A19/2460 | B | 12 | 32 | 16 | 16 | 45 | WS | 4.4 | C L | Black sandy gravelly CLAY |
| BH07 | AA114419 | 5.0 | A19/2459 | B | 3.9 | 21 | NP | NP | 33 | WS | 4.4 | | Black silty, sandy, GRAVEL with many cobbles |

Notes: Preparation: WS - Wet sieved
AR - As received
NP - Non plastic
Liquid Limit 4.3 Cone Penetrometer definitive method
Clause: 4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results apply to sample as received
NOTE: *Clause 3.2 of BS1377 is a "withdrawn" standard due to publication of ISO17892-1:2014
Opinions and interpretations are outside the scope of accreditation.
The results relate to the specimens tested. Any remaining material will be retained for one month.

| | | |
|-------------------------------|---------------------------------------|-------------------------------|
| IGSL Ltd Materials Laboratory | Persons authorized to approve reports | |
| | H Byrne (Laboratory Manager) | Approved by <i>H Byrne</i> |
| | Date | Page |
| | 25/06/19 | 1 of 1 |

TEST REPORT

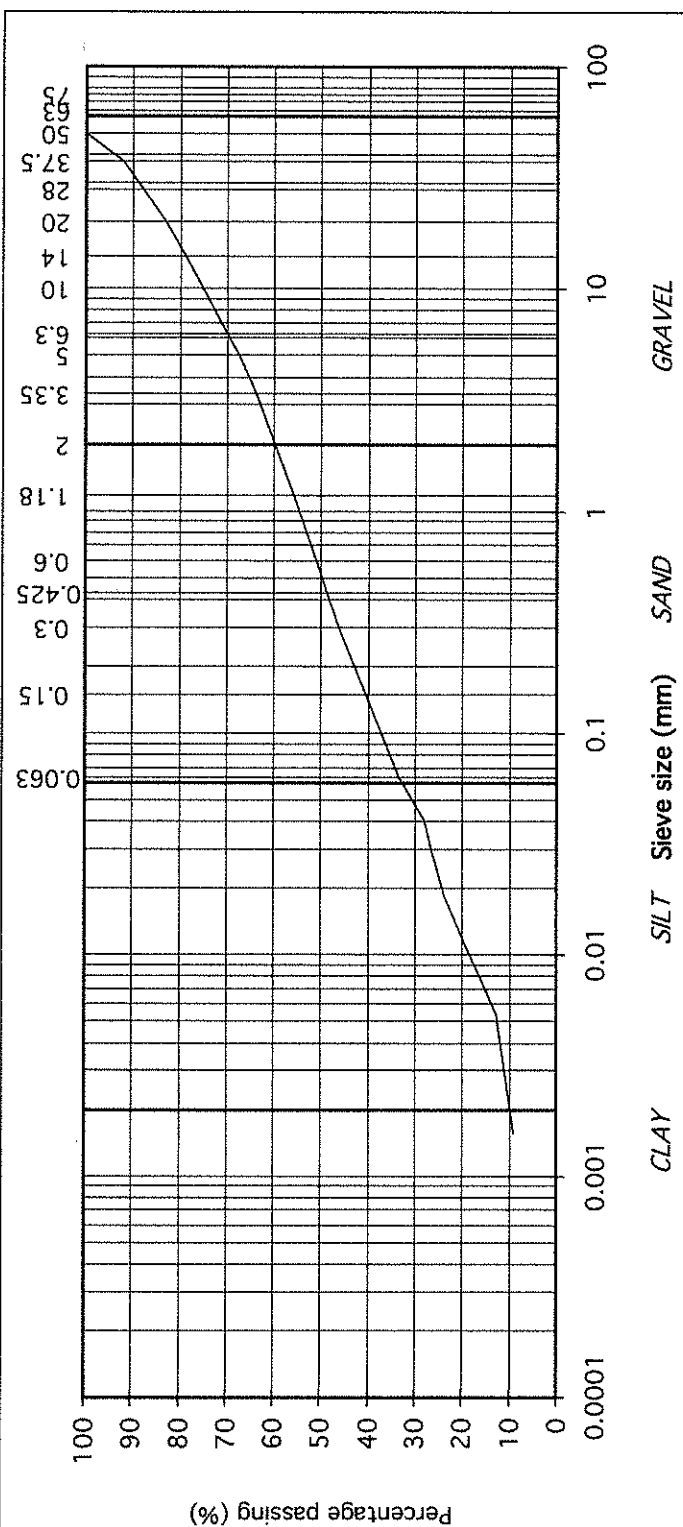
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



| | | | |
|--|---|--|--|
| | Contract No: 21813 | Report No. R102565 | |
| | Contract: Airton Road, Tallaght, Dublin | | |
| | BH/TP: TP02 | | |
| | Sample No. AA113512 | Lab. Sample No. A19/2422 | |
| | Sample Type: B | | |
| | Depth (m) 3.00 | Customer: Barrett Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2 | |
| | Date Received 06/06/2019 | Date Testing started 07/06/2019 | |
| | Description: Black slightly sandy, gravelly, CLAY | | |
| Remarks | | | |
| Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by BS17892-4:2016 | | | |

| particle size | % passing | COBBLES | GRAVEL | SAND | SILT/CLAY |
|---------------|-----------|---------|--------|------|-----------|
| 75 | 100 | | | | |
| 63 | 100 | | | | |
| 50 | 100 | | | | |
| 37.5 | 92 | | | | |
| 28 | 88 | | | | |
| 20 | 83 | | | | |
| 14 | 79 | | | | |
| 10 | 75 | | | | |
| 6.3 | 70 | | | | |
| 5 | 67 | | | | |
| 3.35 | 64 | | | | |
| 2 | 60 | | | | |
| 1.18 | 56 | | | | |
| 0.6 | 51 | | | | |
| 0.425 | 49 | | | | |
| 0.3 | 46 | | | | |
| 0.15 | 41 | | | | |
| 0.063 | 33 | | | | |
| 0.041 | 28 | | | | |
| 0.029 | 26 | | | | |
| 0.018 | 24 | | | | |
| 0.011 | 19 | | | | |
| 0.008 | 16 | | | | |
| 0.005 | 13 | | | | |
| 0.002 | 9 | | | | |



| Sieve Size (mm) | Percentage Passing (%) |
|-----------------|------------------------|
| 75 | 100 |
| 63 | 100 |
| 50 | 100 |
| 37.5 | 92 |
| 28 | 88 |
| 20 | 83 |
| 14 | 79 |
| 10 | 75 |
| 6.3 | 70 |
| 5 | 67 |
| 3.35 | 64 |
| 2 | 60 |
| 1.18 | 56 |
| 0.6 | 51 |
| 0.425 | 49 |
| 0.3 | 46 |
| 0.15 | 41 |
| 0.063 | 33 |
| 0.041 | 28 |
| 0.029 | 26 |
| 0.018 | 24 |
| 0.011 | 19 |
| 0.008 | 16 |
| 0.005 | 13 |
| 0.002 | 9 |

| | | |
|--------------------------------------|--------------------------------|-----------------|
| | Approved by: <i>J. Barrett</i> | Date: 17/06/19 |
| IGSL Ltd Materials Laboratory | | Page no: 1 of 1 |

TEST REPORT

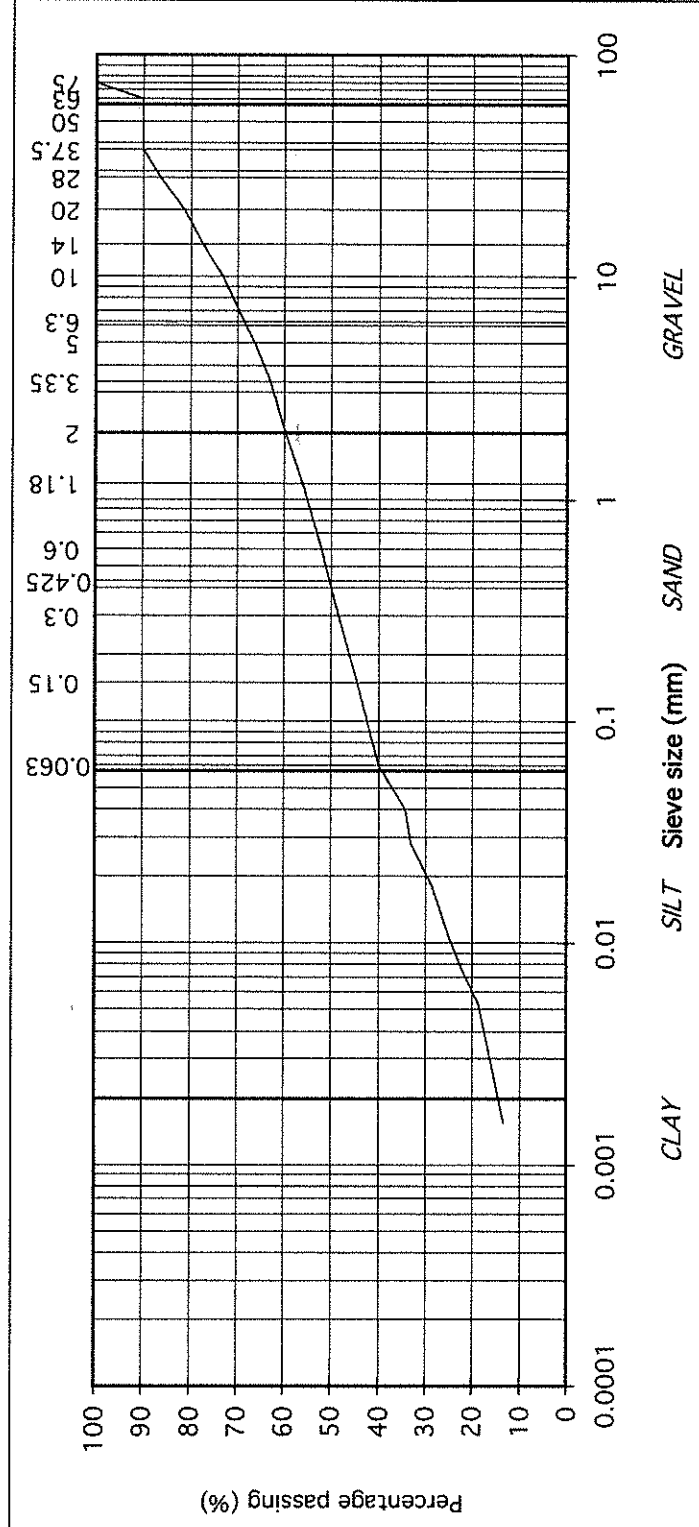
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



| | | | |
|---------------|---|----------------------|--|
| Contract No: | 21813 | Report No. | R102566 |
| Contract: | Airton Road, Tallaght, Dublin | | |
| BH/TP: | TP06 | | |
| Sample No. | AA113517 | Lab. Sample No. | A19?2432 |
| Sample Type: | B | | |
| Depth (m) | 1.00 | Customer: | Barrett Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2 |
| Date Received | 06/06/2019 | Date Testing started | 07/06/2019 |
| Description: | Dark brown slightly sandy, gravelly, CLAY with some cobbles | | |

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by BS17892-4:2016



| particle size | % passing |
|---------------|-----------|
| 75 | 100 |
| 63 | 90 |
| 50 | 90 |
| 37.5 | 90 |
| 28 | 87 |
| 20 | 81 |
| 14 | 77 |
| 10 | 73 |
| 6.3 | 68 |
| 5 | 66 |
| 3.35 | 63 |
| 2 | 60 |
| 1.18 | 56 |
| 0.6 | 52 |
| 0.425 | 50 |
| 0.3 | 48 |
| 0.15 | 45 |
| 0.063 | 40 |
| 0.040 | 34 |
| 0.028 | 33 |
| 0.018 | 29 |
| 0.011 | 25 |
| 0.007 | 22 |
| 0.005 | 19 |
| 0.002 | 13 |

TEST REPORT

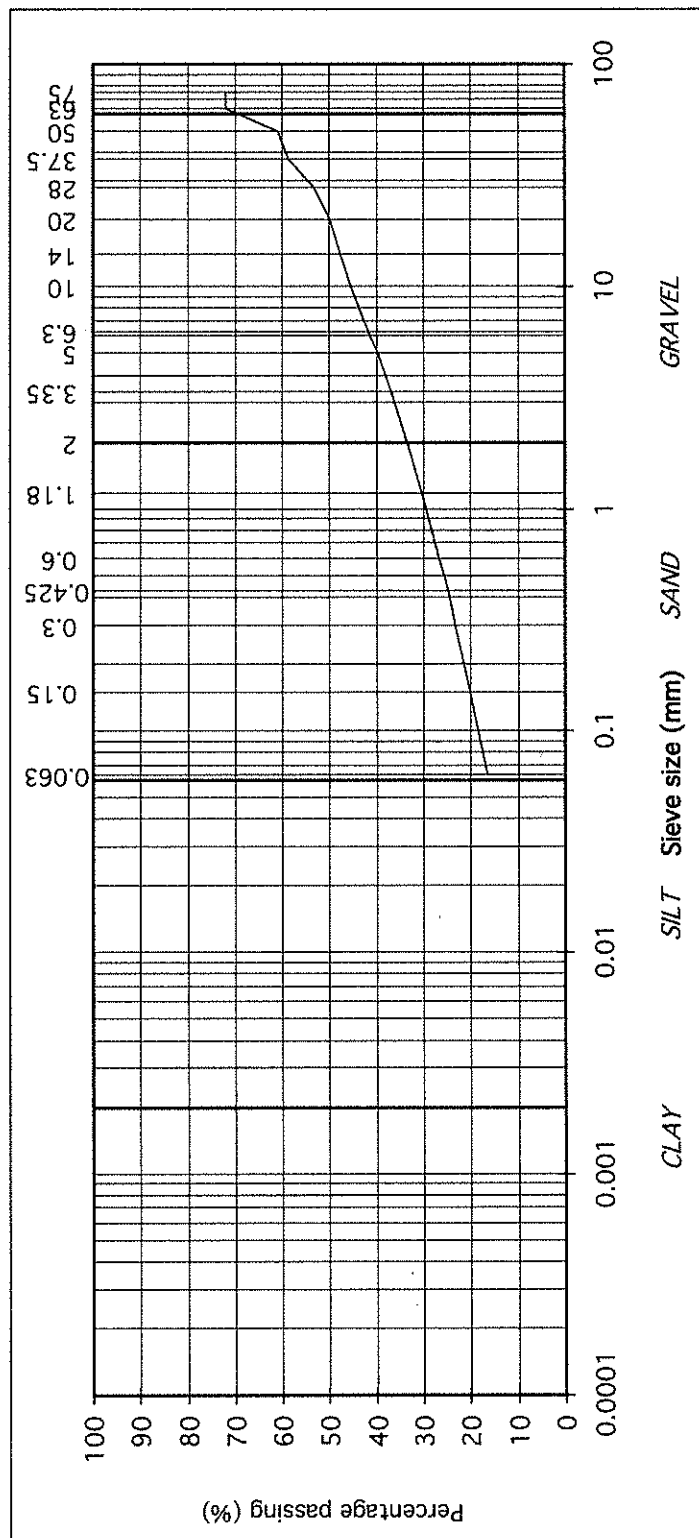
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



| | | | |
|---------------|-----------|---|---|
| particle size | % passing | Contract No: 21813 | Report No. R1025600 |
| 75 | 72 | Contract: Airton Road, Tallaght, Dublin | |
| 63 | 72 | BH/TP: BH01 | |
| 50 | 61 | Sample No. AA38091 | Lab. Sample No. A19/2442 |
| 37.5 | 59 | Sample Type: B | |
| 28 | 53 | Depth (m) 4.00 | Customer: Barret Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2 |
| 20 | 50 | Date Received 06/06/2019 | Date Testing started 07/06/2019 |
| 14 | 48 | Description: Grey clayey, sandy, GRAVEL with many cobbles | |
| 10 | 45 | | |
| 6.3 | 42 | | |
| 5 | 40 | | |
| 3.35 | 37 | | |
| 2 | 33 | | |
| 1.18 | 30 | | |
| 0.6 | 27 | | |
| 0.425 | 25 | | |
| 0.3 | 23 | | |
| 0.15 | 20 | | |
| 0.063 | 16 | | |

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by BS07892:12016. Sample size did not meet the requirements of BS1377



| | | | | |
|--|--|---------------------------------|----------------|-----------------|
| IGSL Ltd Materials Laboratory | | Approved by: <i>[Signature]</i> | Date: 17/06/19 | Page no: 1 of 1 |
| Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager) | | | | |

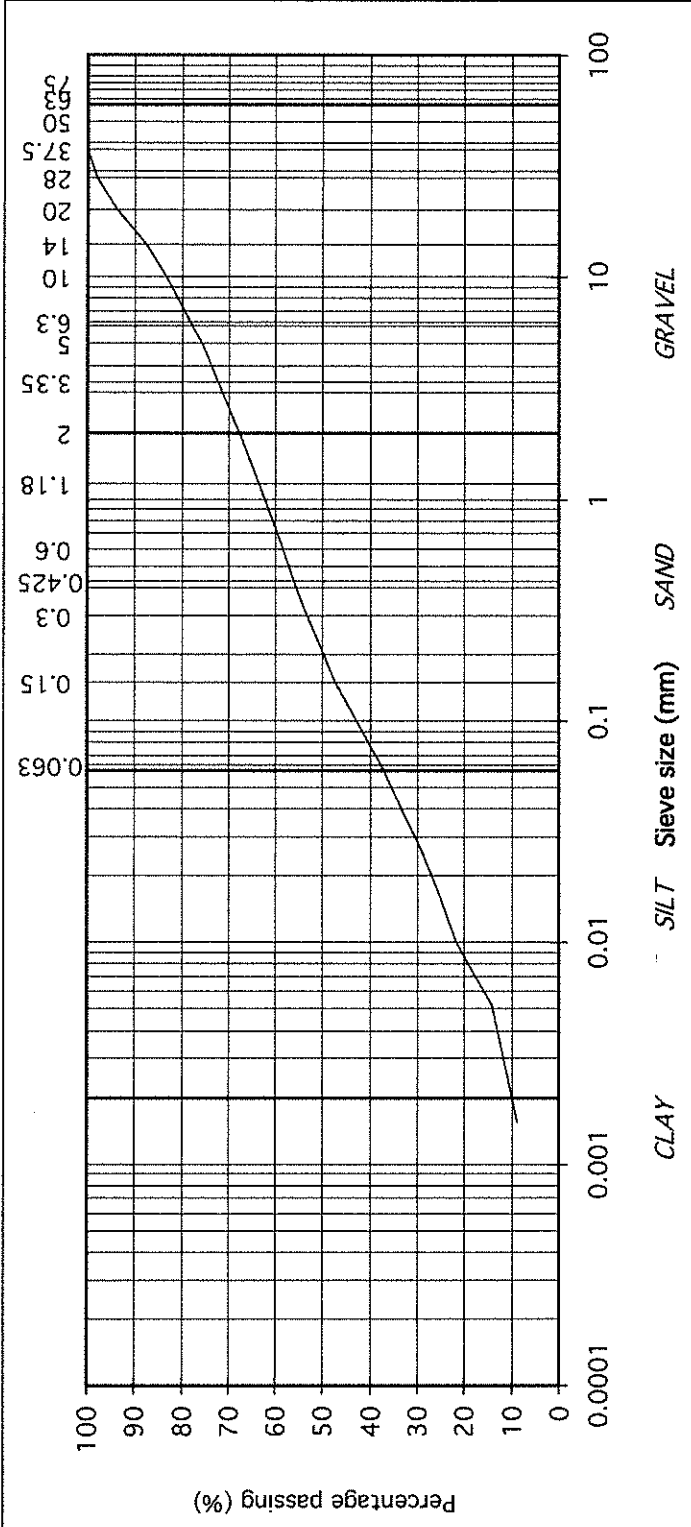
TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



| | | | |
|---------------|-----------|--|--|
| particle size | % passing | Contract No: 21813 | Report No. R102561 |
| 75 | 100 | Contract: Airton Road, Tallaght, Dublin | |
| 63 | 100 | BH/TP: BH02 | |
| 50 | 100 | Sample No. AA38096 | Lab. Sample No. A19/2448 |
| 37.5 | 100 | Sample Type: B | |
| 28 | 98 | Depth (m) 4.00 | Customer: Barrett Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2 |
| 20 | 94 | Date Received 06/06/2019 | Date Testing started 07/06/2019 |
| 14 | 88 | Description: Black slightly sandy, slightly gravelly, CLAY | |
| 10 | 83 | Remarks | |
| 6.3 | 78 | | |
| 5 | 76 | | |
| 3.35 | 72 | | |
| 2 | 68 | | |
| 1.18 | 64 | | |
| 0.6 | 58 | | |
| 0.425 | 56 | | |
| 0.3 | 53 | | |
| 0.15 | 47 | | |
| 0.063 | 38 | | |
| 0.038 | 33 | | |
| 0.027 | 30 | | |
| 0.017 | 26 | | |
| 0.010 | 22 | | |
| 0.007 | 18 | | |
| 0.005 | 14 | | |
| 0.002 | 9 | | |



Approved by: *[Signature]* Date: 17/06/19 Page no: 1 of 1

IGSL Ltd Materials Laboratory

TEST REPORT

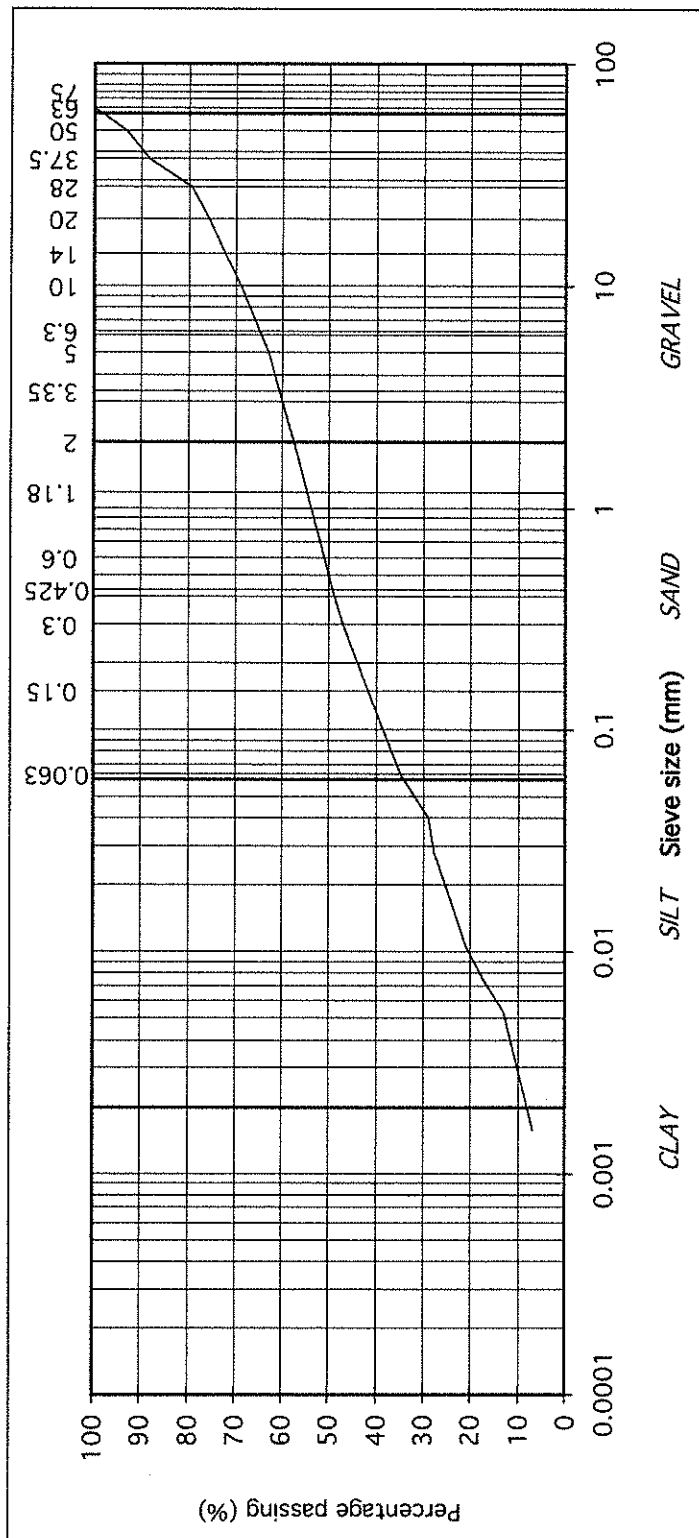
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



Contract No: 21813 Report No. R102562
 Contract: Airton Road, Tallaght, Dublin
 BH/TP: BH03
 Sample No. AA117472 Lab. Sample No. A19/2445
 Sample Type: B
 Depth (m) 5.00 Customer: Barrett Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2
 Date Received 06/06/2019 Date Testing started 07/06/2019
 Description: Black slightly sandy, gravelly, CLAY

Remarks



| particle size | % passing |
|---------------|-----------|
| 75 | 100 |
| 63 | 100 |
| 50 | 93 |
| 37.5 | 88 |
| 28 | 79 |
| 20 | 76 |
| 14 | 72 |
| 10 | 69 |
| 6.3 | 65 |
| 5 | 63 |
| 3.35 | 61 |
| 2 | 58 |
| 1.18 | 55 |
| 0.6 | 51 |
| 0.425 | 49 |
| 0.3 | 47 |
| 0.15 | 42 |
| 0.063 | 35 |
| 0.040 | 29 |
| 0.029 | 28 |
| 0.018 | 25 |
| 0.011 | 21 |
| 0.008 | 17 |
| 0.005 | 13 |
| 0.002 | 7 |

COBBLES

GRAVEL

SAND

SILT/CLAY

CLAY

SAND

SILT

GRAVEL

Approved by: *[Signature]* Date: 17/06/19 Page no: 1 of 1

IGSL Ltd Materials Laboratory

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

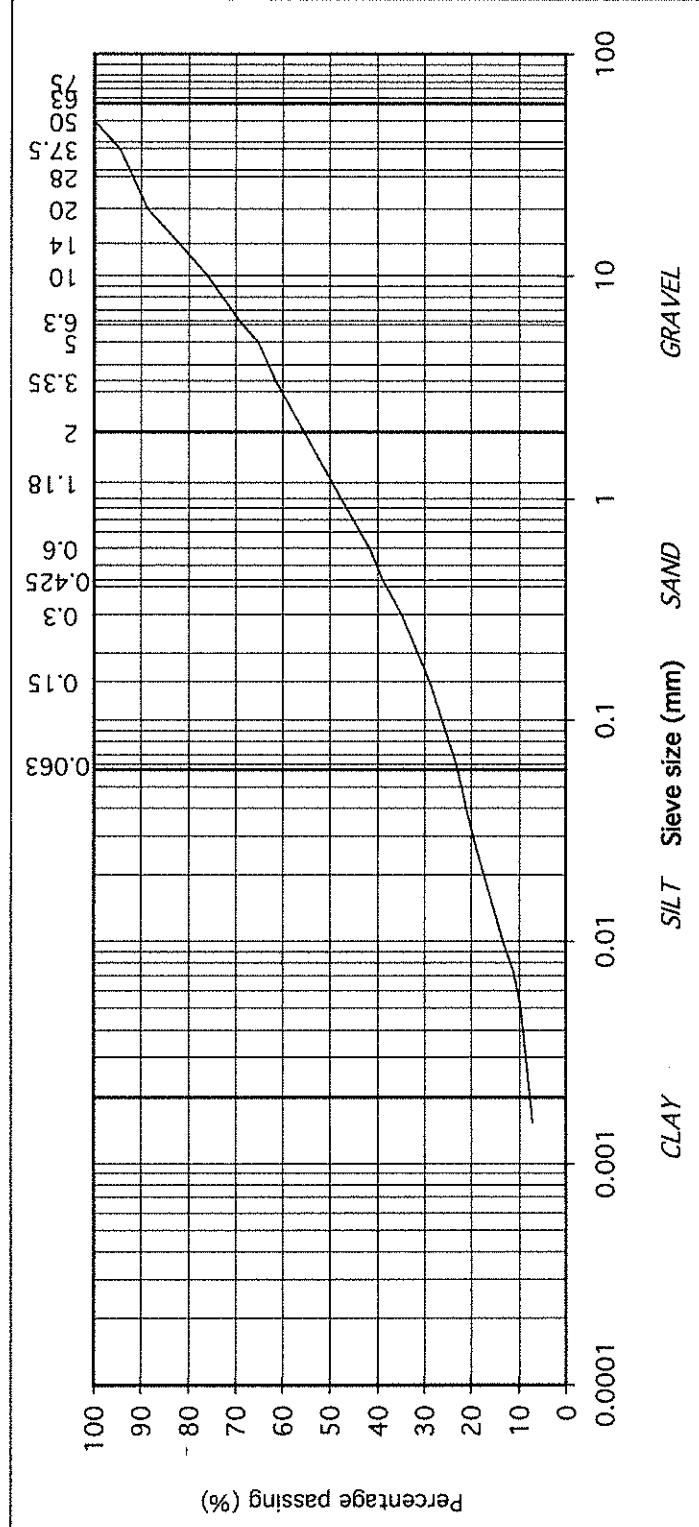
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



| | | | |
|---------------|-----------|---|--|
| particle size | % passing | Contract No: 21813 | Report No. R102563 |
| 75 | 100 | Contract: Airton Road, Tallaght, Dublin | |
| 63 | 100 | BH/TP: BH05 | |
| 50 | 100 | Sample No. AA114406 | Lab. Sample No. A19/2457 |
| 37.5 | 95 | Sample Type: B | |
| 28 | 92 | Depth (m) 6.00 | Customer: Barrett Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2 |
| 20 | 89 | Date Received 06/06/2019 | Date Testing started 12/06/2019 |
| 14 | 82 | Description: Black slightly sandy, gravelly, SILT | |
| 10 | 76 | Remarks | |
| 6.3 | 69 | | |
| 5 | 65 | | |
| 3.35 | 61 | | |
| 2 | 56 | | |
| 1.18 | 50 | | |
| 0.6 | 42 | | |
| 0.425 | 39 | | |
| 0.3 | 35 | | |
| 0.15 | 29 | | |
| 0.063 | 23 | | |
| 0.037 | 21 | | |
| 0.027 | 19 | | |
| 0.017 | 16 | | |
| 0.010 | 13 | | |
| 0.007 | 11 | | |
| 0.005 | 10 | | |
| 0.002 | 7 | | |

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by BS17892-1:2016



Approved by: *[Signature]* Date: 17/06/19 Page no: 1 of 1

IGSL Ltd Materials Laboratory

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

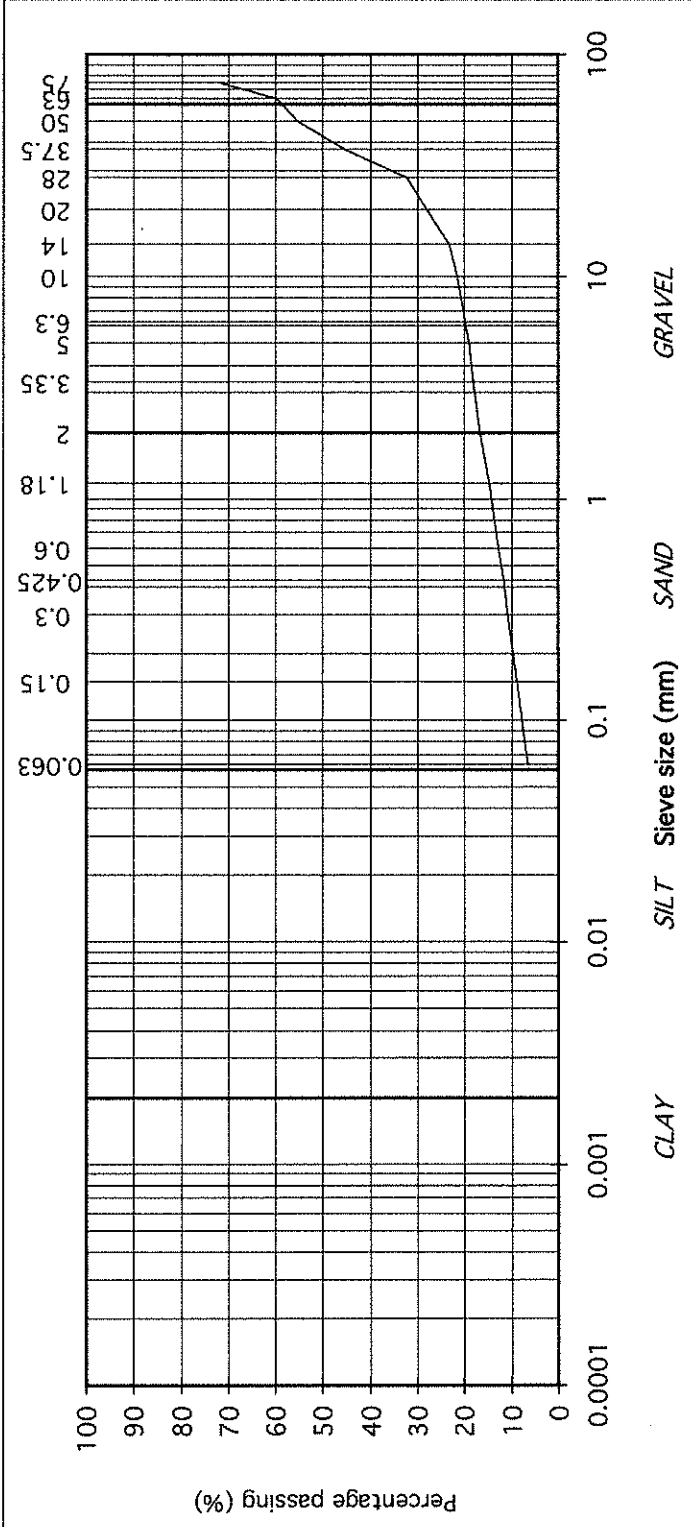
TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



| Contract No: 21813 Report No. R102564 Contract: Airton Road, Tallaght, Dublin BH/TP: BH07 Sample No. AA114419 Lab. Sample No. A19/2459 Sample Type: B Depth (m) 5.00 Customer: Barret Mahony Consulting Engineers, Sandwith House, 52-54 Sandwith Street Lower, Dublin 2 Date Received 06/06/2019 Date Testing started 07/06/2019 Description: Black silty, sandy, GRAVEL with many cobbles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------|-----------|----|----|----|----|----|----|------|----|----|----|----|----|----|----|----|----|-----|----|---|----|------|----|---|----|------|----|-----|----|-------|----|-----|----|------|---|-------|---|---|---------|--------|------|-----------|
| Remarks: Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by BS17882-4:2016 Note: Sample size did not meet the requirements of BS1377 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>particle size</th> <th>% passing</th> </tr> </thead> <tbody> <tr> <td>75</td> <td>72</td> </tr> <tr> <td>63</td> <td>60</td> </tr> <tr> <td>50</td> <td>55</td> </tr> <tr> <td>37.5</td> <td>45</td> </tr> <tr> <td>28</td> <td>32</td> </tr> <tr> <td>20</td> <td>28</td> </tr> <tr> <td>14</td> <td>23</td> </tr> <tr> <td>10</td> <td>21</td> </tr> <tr> <td>6.3</td> <td>20</td> </tr> <tr> <td>5</td> <td>19</td> </tr> <tr> <td>3.35</td> <td>18</td> </tr> <tr> <td>2</td> <td>17</td> </tr> <tr> <td>1.18</td> <td>15</td> </tr> <tr> <td>0.6</td> <td>13</td> </tr> <tr> <td>0.425</td> <td>12</td> </tr> <tr> <td>0.3</td> <td>11</td> </tr> <tr> <td>0.15</td> <td>9</td> </tr> <tr> <td>0.063</td> <td>7</td> </tr> </tbody> </table> | particle size | % passing | 75 | 72 | 63 | 60 | 50 | 55 | 37.5 | 45 | 28 | 32 | 20 | 28 | 14 | 23 | 10 | 21 | 6.3 | 20 | 5 | 19 | 3.35 | 18 | 2 | 17 | 1.18 | 15 | 0.6 | 13 | 0.425 | 12 | 0.3 | 11 | 0.15 | 9 | 0.063 | 7 | <table border="1"> <tr> <td>COBBLES</td> </tr> <tr> <td>GRAVEL</td> </tr> <tr> <td>SAND</td> </tr> <tr> <td>SILT/CLAY</td> </tr> </table> | COBBLES | GRAVEL | SAND | SILT/CLAY |
| particle size | % passing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37.5 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.3 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.35 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.18 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.6 | 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.425 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.3 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.15 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.063 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COBBLES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRAVEL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SAND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SILT/CLAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Approved by: <i>J Barrett</i> Date: 17/06/19 Page no: 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



IGSL Ltd Materials Laboratory

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

Appendix VI Laboratory

b. Environmental and Chemical



Final Report

Report No.: 19-19643-1

Initial Date of Issue: 19-Jun-2019

Client: IGSL

Client Address: M7 Business Park
Naas
County Kildare
Ireland

Contact(s): Darren Keogh

Project: 21813 Airton Road, Tallaght, Dublin
(BMCE)

Quotation No.: **Date Received:** 11-Jun-2019


Order No.: **Date Instructed:** 12-Jun-2019

No. of Samples: 28

Turnaround (Wkdays): 5 **Results Due:** 18-Jun-2019

Date Approved: 18-Jun-2019

Approved By:



Details: Robert Monk, Technical Manager

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

| Client: IGSL | Chemtest Job No.: | | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 |
|-------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: | Chemtest Sample ID.: | 841051 | 841052 | 841054 | 841055 | 841056 | 841057 | 841058 | 841059 | 841061 | 841061 | 841061 | 841061 |
| Order No.: | Client Sample Ref.: | 38092 | 117468 | 10696 | 11401 | 114409 | 114415 | AA99927 | AA99928 | AA113509 | AA113509 | AA113509 | AA113509 |
| | Sample Location: | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | TP01 | TP01 | TP02 | TP02 | TP02 | TP02 |
| | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | Top Depth (m): | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Bottom Depth (m): | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Date Sampled: | 31-May-2019 | 31-May-2019 | 30-May-2019 | 29-May-2019 | 30-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 |
| | Units | LOD | | | | | | | | | | | |
| Ammonium | Accred. | SOP | Type | Units | LOD | | | | | | | | |
| | U | 1220 | 10:1 | mg/l | 0.050 | 0.36 | 0.34 | 0.079 | 0.11 | 0.16 | 0.19 | 0.10 | 0.12 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 3.6 | 3.4 | 0.79 | 1.1 | 1.6 | 1.9 | 1.0 | 1.2 |
| Boron (Dissolved) | U | 1450 | 10:1 | µg/l | 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Boron (Dissolved) | U | 1450 | 10:1 | mg/kg | 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 |

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

| Client: IGSL | Chemtest Job No.: | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 |
|-------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|----------|----------|
| Quotation No.: | Chemtest Sample ID.: | 841062 | 841064 | 841065 | 841066 | 841067 | 841069 | 841070 | 841071 | | | |
| Order No.: | Client Sample Ref.: | AA99943 | AA99944 | AA99945 | AA99938 | AA99939 | AA113513 | AA113514 | AA113516 | | | |
| | Sample Location: | TP03 | TP03 | TP03 | TP04 | TP04 | TP05 | TP05 | TP06 | | | |
| | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | | | |
| | Top Depth (m): | 0.50 | 1.00 | 2.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | | | |
| | Bottom Depth (m): | 0.50 | 1.00 | 2.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | | | |
| | Date Sampled: | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | | | |
| | Units | LOD | | | | | | | | | | |
| | Accred. | SOP | Type | Units | LOD | | | | | | | |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | 0.12 | 0.097 | 0.12 | 0.17 | 0.18 | 0.13 | 0.16 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 1.2 | 0.97 | 1.2 | 1.7 | 1.8 | 1.3 | 1.6 |
| Boron (Dissolved) | U | 1450 | 10:1 | µg/l | 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Boron (Dissolved) | U | 1450 | 10:1 | mg/kg | 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 |

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

| Client: IGSL | Chemtest Job No.: | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 |
|-------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: | Chemtest Sample ID.: | 841072 | 841073 | 841074 | 841075 | 841076 | 841077 | 841078 | 841079 | 841080 |
| Order No.: | Client Sample Ref.: | AA113518 | AA99935 | AA99936 | AA99931 | AA99932 | AA99927 | AA99929 | AA99927 | AA99929 |
| | Sample Location: | TP06 | TP07 | TP07 | TP08 | TP08 | TP09 | TP09 | TP09 | TP09 |
| | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | Top Depth (m): | 2.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 2.00 |
| | Bottom Depth (m): | 2.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 2.00 |
| | Date Sampled: | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 |
| | Units | LOD | | | | | | | | |
| | Accred. | SOP | Type | Units | LOD | | | | | |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | 0.22 | 0.17 | 0.17 | 0.16 | 0.12 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 2.2 | 1.7 | 1.7 | 1.6 | 1.2 |
| Boron (Dissolved) | U | 1450 | 10:1 | µg/l | 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Boron (Dissolved) | U | 1450 | 10:1 | mg/kg | 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 |

Results - Soil

| Client: IGSL | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | |
|-------------------------------------|-------------------|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|---------------------|------------------|--------------|----------------|-------------------|---------------|---------------|
| | Quotation No.: | Chemtest Sample ID.: | 841051 | 841052 | 841053 | 841054 | 841055 | 841056 | 841057 | 841058 | Client Sample Ref.: | Sample Location: | Sample Type: | Top Depth (m): | Bottom Depth (m): | Date Sampled: | Asbestos Lab: |
| Order No.: | 38092 | BH2 | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | BH6 | BH7 | TP01 | TP01 | TP01 | TP01 | TP01 |
| | 1.00 | 1.00 | 1.00 | 1.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | 1.00 | 1.00 | 1.00 | 1.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | 31-May-2019 | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | 30-May-2019 | 29-May-2019 | 30-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 |
| | Asbestos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | | | | | | | | | | | | | |
| Asbestos Identification | U | 2192 | % | 0.001 | | | | | | | | | | | | | |
| ACM Detection Stage | U | 2192 | | N/A | | | | | | | | | | | | | |
| Moisture | N | 2030 | % | 0.020 | | | | | | | | | | | | | |
| pH | U | 2010 | | N/A | | | | | | | | | | | | | |
| Boron (Hot Water Soluble) | U | 2120 | mg/kg | 0.40 | 8.7 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 |
| Sulphate (2:1 Water Soluble) as SO4 | U | 2120 | g/l | 0.010 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 | 0.076 |
| Sulphur (Elemental) | U | 2180 | mg/kg | 1.0 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| Cyanide (Total) | U | 2300 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 2.7 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Arsenic | U | 2450 | mg/kg | 1.0 | 19 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Barium | U | 2450 | mg/kg | 10 | 42 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| Cadmium | U | 2450 | mg/kg | 0.10 | 1.9 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| Chromium | U | 2450 | mg/kg | 1.0 | 12 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| Molybdenum | U | 2450 | mg/kg | 2.0 | 3.2 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Copper | U | 2450 | mg/kg | 0.50 | 21 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Mercury | U | 2450 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Nickel | U | 2450 | mg/kg | 0.50 | 37 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 |
| Lead | U | 2450 | mg/kg | 0.50 | 13 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Selenium | U | 2450 | mg/kg | 0.20 | 0.31 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| Zinc | U | 2450 | mg/kg | 0.50 | 57 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 12 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Total Organic Carbon | U | 2625 | % | 0.20 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Mineral Oil | N | 2670 | mg/kg | 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

Results - Soil

| Client: IGSL | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | | | |
|------------------------------|-------------------|----------------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|---------------------|-------------|----------|-------------|---------|-------------|--|
| | Quotation No.: | Chemtest Sample ID.: | 841051 | 841052 | 841053 | 841054 | 841055 | 841056 | 841057 | 841058 | Client Sample Ref.: | 38092 | 117468 | 114409 | 114415 | AA99927 | |
| Order No.: | Sample Location: | | BH2 | BH3 | BH3 | BH4 | BH5 | BH6 | BH7 | TP01 | Sample Type: | | SOIL | | SOIL | | |
| Top Depth (m): | | 1.00 | | 1.00 | | 3.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 0.50 | |
| Bottom Depth (m): | | 1.00 | | 1.00 | | 3.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 0.50 | |
| Date Sampled: | | 31-May-2019 | | 31-May-2019 | | 31-May-2019 | | 30-May-2019 | | 29-May-2019 | | 30-May-2019 | | 27-May-2019 | | 27-May-2019 | |
| Asbestos Lab: | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | | | | | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Aromatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Aromatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Aromatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | |
| Benzene | U | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Toluene | U | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Ethylbenzene | U | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| m & p-Xylene | U | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| o-Xylene | U | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Methyl Tert-Butyl Ether | U | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Naphthalene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Acenaphthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Fluorene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Phenanthrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Benzo[a]anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Chrysene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Benzo[b]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Benzo[k]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Benzo[a]pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Indeno(1,2,3-c,d)Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Benzo[g,h,i]perylene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | |

Results - Soil

| Client: IGSL | Chemtest Job No.: | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 | 19-19643 |
|--------------------------|----------------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|----------|----------|----------|
| Quotation No.: | Chemtest Sample ID.: | 841051 | 841052 | 841053 | 841054 | 841055 | 841056 | 841057 | 841058 | | | |
| Order No.: | Client Sample Ref.: | 38092 | 117468 | 117470 | 10696 | 11401 | 114409 | 114415 | AA99927 | | | |
| | Sample Location: | BH2 | BH3 | BH3 | BH4 | BH5 | BH6 | BH7 | TP01 | | | |
| | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | | | |
| | Top Depth (m): | 1.00 | 1.00 | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.50 | | | |
| | Bottom Depth (m): | 1.00 | -1.00 | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.50 | | | |
| | Date Sampled: | 31-May-2019 | -31-May-2019 | 31-May-2019 | 30-May-2019 | 29-May-2019 | 30-May-2019 | 27-May-2019 | 27-May-2019 | | | |
| | Asbestos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total PCBs (7 Congeners) | N | 2815 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Phenols | U | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 |

| Client: IGSL | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | |
|-------------------------------------|-------------------|----------------------|-------------|-------------|----------------------|-------------|----------------------|-------------|----------------------|-------------|----------------------|------------|----------------------|------------|----------------------|------------|------------|
| | Quotation No.: | Chemtest Sample ID.: | 841059 | 841060 | 841061 | 841062 | 841063 | 841064 | 841065 | 841066 | Client Sample Ref.: | AA99928 | AA99929 | AA99943 | AA99944 | AA99945 | |
| Order No.: | Sample Location: | | TP01 | TP01 | TP02 | TP02 | TP03 | TP03 | TP03 | TP04 | Sample Type: | | SOIL | SOIL | SOIL | SOIL | |
| Top Depth (m): | | | 1.00 | 2.00 | 0.50 | 2.00 | 0.50 | 2.00 | 1.00 | 2.00 | Bottom Depth (m): | | 1.00 | 0.50 | 2.00 | 0.50 | |
| Date Sampled: | | | 27-May-2019 | 27-May-2019 | 27-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | Asbestos Lab: | | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | No Asbestos Detected | | No Asbestos Detected | | No Asbestos Detected | | No Asbestos Detected | | No Asbestos Detected | | No Asbestos Detected | | |
| ACM Type | U | 2192 | % | N/A | - | - | - | - | - | - | - | - | - | - | - | - | |
| Asbestos Identification | U | 2192 | % | 0.001 | 7.2 | 9.7 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 16 |
| ACM Detection Stage | U | 2192 | % | N/A | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Moisture | N | 2030 | % | 0.020 | 7.2 | 9.7 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 16 |
| pH | U | 2010 | | N/A | 8.6 | 8.6 | | | | | | | | | | | |
| Boron (Hot Water Soluble) | U | 2120 | mg/kg | 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 | < 0.40 |
| Sulphate (2:1 Water Soluble) as SO4 | U | 2120 | g/l | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Sulphur (Elemental) | U | 2180 | mg/kg | 1.0 | 1.2 | 1.4 | 1.4 | 1.4 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 2.8 | 2.8 | 1.2 | 1.2 |
| Cyanide (Total) | U | 2300 | mg/kg | 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 2.8 | 19 | 16 | 16 | 16 | 16 | 16 | 16 | 2.7 | 15 | 15 | 0.93 | 0.93 |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 0.046 | < 0.010 | < 0.010 | 0.029 | 0.029 |
| Arsenic | U | 2450 | mg/kg | 1.0 | 29 | 26 | 28 | 28 | 24 | 24 | 24 | 20 | 20 | 23 | 23 | 14 | 14 |
| Barium | U | 2450 | mg/kg | 10 | 41 | 39 | 61 | 61 | 37 | 37 | 37 | 97 | 97 | 41 | 41 | 76 | 76 |
| Cadmium | U | 2450 | mg/kg | 0.10 | 1.8 | 1.6 | 1.9 | 1.9 | 2.9 | 2.9 | 2.9 | 4.7 | 4.7 | 1.9 | 1.9 | 2.1 | 2.1 |
| Chromium | U | 2450 | mg/kg | 1.0 | 13 | 14 | 12 | 12 | 13 | 13 | 13 | 26 | 26 | 13 | 13 | 23 | 23 |
| Molybdenum | U | 2450 | mg/kg | 2.0 | 3.5 | 3.5 | 3.7 | 3.7 | 3.6 | 3.6 | 4.3 | 4.3 | 4.3 | 3.6 | 3.6 | 2.3 | 2.3 |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | 2.5 | 2.5 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Copper | U | 2450 | mg/kg | 0.50 | 23 | 22 | 31 | 31 | 22 | 22 | 22 | 45 | 45 | 23 | 23 | 27 | 27 |
| Mercury | U | 2450 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.10 | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Nickel | U | 2450 | mg/kg | 0.50 | 42 | 43 | 48 | 48 | 44 | 44 | 44 | 100 | 100 | 46 | 46 | 50 | 50 |
| Lead | U | 2450 | mg/kg | 0.50 | 15 | 16 | 14 | 14 | 15 | 15 | 15 | 27 | 27 | 19 | 19 | 20 | 20 |
| Selenium | U | 2450 | mg/kg | 0.20 | < 0.20 | 0.42 | < 0.20 | < 0.20 | 0.30 | 0.30 | 0.30 | 0.94 | 0.94 | 2.4 | 2.4 | 0.51 | 0.51 |
| Zinc | U | 2450 | mg/kg | 0.50 | 59 | 58 | 70 | 70 | 62 | 62 | 62 | 120 | 120 | 62 | 62 | 100 | 100 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 13 | 14 | 12 | 12 | 13 | 13 | 13 | 26 | 26 | 13 | 13 | 23 | 23 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Total Organic Carbon | U | 2625 | % | 0.20 | 0.29 | 0.34 | 0.64 | 0.64 | 0.33 | 0.33 | 0.33 | 0.87 | 0.87 | 0.32 | 0.32 | 0.65 | 0.65 |
| Mineral Oil | N | 2670 | mg/kg | 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Aliphatic TPH > C5-C6 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH > C6-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH > C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH > C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH > C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH > C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH > C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH > C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 |

| Client: IGSL | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | |
|------------------------------|---------------------|----------------------|-------------|--------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| | Quotation No.: | Chemtest Sample ID.: | 841060 | 841061 | 841062 | 841063 | 841064 | 841065 | 841066 | 841067 | 841068 | 841069 | 841070 | 841071 |
| Order No.: | Client Sample Ref.: | | AA99928 | | AA99929 | | AA99943 | | AA99944 | | AA99945 | | AA99938 | |
| | Sample Location: | | TP01 | | TP01 | | TP02 | | TP03 | | TP03 | | TP04 | |
| | Sample Type: | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | Top Depth (m): | | 1.00 | | 2.00 | | 2.00 | | 1.00 | | 2.00 | | 0.50 | |
| | Bottom Depth (m): | | 1.00 | | 2.00 | | 2.00 | | 1.00 | | 2.00 | | 0.50 | |
| | Date Sampled: | | 27-May-2019 | | 27-May-2019 | | 24-May-2019 | | 24-May-2019 | | 24-May-2019 | | 24-May-2019 | |
| | Asbestos Lab: | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 |
| Benzene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Toluene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Ethylbenzene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| m & p-Xylene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| o-Xylene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Methyl Tert-Butyl Ether | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Naphthalene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Chrysene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[b]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[k]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |

Results - Soil

| | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | |
|--------------------------|---------|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|---------|
| | | Chemtest Job No.: | 841059 | 841060 | 841061 | 841062 | 841063 | 841064 | 841065 | 841066 | Chemtest Sample ID.: | 841063 | 841064 | 841065 | 841066 | |
| | | Client Sample Ref.: | AA99928 | AA99929 | AA113509 | AA99944 | AA99943 | AA99944 | AA99945 | AA99938 | Client Sample Ref.: | AA99943 | AA99944 | AA99945 | AA99938 | |
| | | Sample Location: | TP01 | TP01 | TP02 | TP02 | TP03 | TP03 | TP03 | TP04 | Sample Location: | TP03 | TP03 | TP03 | TP04 | |
| | | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | Sample Type: | SOIL | SOIL | SOIL | SOIL | |
| | | Top Depth (m): | 1.00 | 2.00 | 0.50 | 2.00 | 0.50 | 1.00 | 2.00 | 0.50 | Top Depth (m): | 0.50 | 1.00 | 2.00 | 0.50 | |
| | | Bottom Depth (m): | 1.00 | 2.00 | 0.50 | 2.00 | 0.50 | 1.00 | 2.00 | 0.50 | Bottom Depth (m): | 0.50 | 1.00 | 2.00 | 0.50 | |
| | | Date Sampled: | 27-May-2019 | 27-May-2019 | 27-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | Date Sampled: | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | |
| | | Asbestos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | Asbestos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | | | | |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total PCBs (7 Congeners) | N | 2815 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Phenols | U | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 |

| Client: IGSL | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | |
|-------------------------------------|---------------------|----------------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Quotation No.: | Chemtest Sample ID.: | 841067 | 841068 | 841069 | 841070 | 841071 | 841072 | 841073 | 841074 | 841075 | 841076 | 841077 | 841078 |
| Order No.: | Client Sample Ref.: | AA99939 | AA99940 | AA113513 | AA113514 | AA113515 | AA113516 | AA113517 | AA99935 | AA99936 | AA99937 | AA99938 | AA99939 | AA99940 |
| Sample Location: | Sample Location: | TP04 | TP04 | TP05 | TP05 | TP06 | TP06 | TP06 | TP07 | TP07 | TP07 | TP07 | TP07 | TP07 |
| Sample Type: | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Top Depth (m): | Top Depth (m): | 1.00 | 2.00 | 0.50 | 1.00 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 1.00 |
| Bottom Depth (m): | Bottom Depth (m): | 1.00 | 2.00 | 0.50 | 1.00 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 1.00 |
| Date Sampled: | Date Sampled: | 24-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 |
| Asbestos Lab: | Asbestos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | | | | | | | | | | |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | | | | | | | | | |
| ACM Detection Stage | U | 2192 | | N/A | | | | | | | | | | |
| Moisture | N | 2030 | % | 0.020 | 19 | | | | | | | | | |
| pH | U | 2010 | | N/A | 8.6 | | | | | | | | | |
| Boron (Hot Water Soluble) | U | 2120 | mg/kg | 0.40 | 0.43 | | | | | | | | | |
| Sulphate (2:1 Water Soluble) as SO4 | U | 2120 | g/l | 0.010 | < 0.010 | | | | | | | | | |
| Sulphur (Elemental) | U | 2180 | mg/kg | 1.0 | 1.3 | | | | | | | | | |
| Cyanide (Total) | U | 2300 | mg/kg | 0.50 | [B] < 0.50 | | | | | | | | | |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 9.9 | | | | | | | | | |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | < 0.010 | | | | | | | | | |
| Arsenic | U | 2450 | mg/kg | 1.0 | 21 | | | | | | | | | |
| Barium | U | 2450 | mg/kg | 10 | 44 | | | | | | | | | |
| Cadmium | U | 2450 | mg/kg | 0.10 | 1.7 | | | | | | | | | |
| Chromium | U | 2450 | mg/kg | 1.0 | 12 | | | | | | | | | |
| Molybdenum | U | 2450 | mg/kg | 2.0 | 3.0 | | | | | | | | | |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | | | | | | | | | |
| Copper | U | 2450 | mg/kg | 0.50 | 21 | | | | | | | | | |
| Mercury | U | 2450 | mg/kg | 0.10 | < 0.10 | | | | | | | | | |
| Nickel | U | 2450 | mg/kg | 0.50 | 39 | | | | | | | | | |
| Lead | U | 2450 | mg/kg | 0.50 | 15 | | | | | | | | | |
| Selenium | U | 2450 | mg/kg | 0.20 | < 0.20 | | | | | | | | | |
| Zinc | U | 2450 | mg/kg | 0.50 | 58 | | | | | | | | | |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 12 | | | | | | | | | |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | | | | | | | | | |
| Total Organic Carbon | U | 2625 | % | 0.20 | 0.33 | | | | | | | | | |
| Mineral Oil | N | 2670 | mg/kg | 10 | < 10 | | | | | | | | | |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Aliphatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Aliphatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Aliphatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Aliphatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Aliphatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | | | | | | | | | |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 | | | | | | | | | |

Results - Soil

| Client: IGSL | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | |
|------------------------------|---------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Quotation No.: | Chemtest Sample ID.: | 841067 | 841068 | 841069 | 841070 | 841071 | 841072 | 841073 | 841074 | 841075 | 841076 | 841077 | 841078 |
| Order No.: | Client Sample Ref.: | AA99939 | AA99940 | AA113513 | AA113514 | AA113515 | AA113516 | AA113517 | AA99935 | AA99936 | AA99937 | AA99938 | AA99939 | AA99940 |
| | Sample Location: | TP04 | TP04 | TP05 | TP05 | TP06 | TP06 | TP06 | TP07 | TP07 | TP07 | TP07 | TP07 | TP07 |
| | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | Top Depth (m): | 1.00 | 2.00 | 0.50 | 1.00 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 1.00 |
| | Bottom Depth (m): | 1.00 | 2.00 | 0.50 | 1.00 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 1.00 |
| | Date Sampled: | 24-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 27-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 |
| | Asbestos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 |
| Benzene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Toluene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Ethylbenzene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| m & p-Xylene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| o-Xylene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Methyl Tert-Butyl Ether | U | 2760 | µg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Naphthalene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Chrysene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[b]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[k]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | U | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |

Results - Soil

| Client: IGSL | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | |
|--------------------------|---------------------|----------------------|-------------|--------|-------------|---------|-------------|---------|-------------|---------|-------------|---------|-------------|---------|
| | Quotation No.: | Chemtest Sample ID.: | 841067 | 841068 | 841069 | 841070 | 841071 | 841072 | 841073 | 841074 | AA99939 | AA99935 | AA99936 | TP07 |
| Order No.: | Client Sample Ref.: | | AA99940 | | AA113513 | | AA113514 | | AA113518 | | TP07 | | TP07 | |
| | Sample Location: | | TP04 | | TP05 | | TP05 | | TP06 | | TP06 | | TP07 | |
| | Sample Type: | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | | SOIL | |
| | Top Depth (m): | | 1.00 | | 0.50 | | 1.00 | | 2.00 | | 2.00 | | 1.00 | |
| | Bottom Depth (m): | | 1.00 | | 0.50 | | 1.00 | | 2.00 | | 2.00 | | 1.00 | |
| | Date Sampled: | | 24-May-2019 | | 27-May-2019 | | 27-May-2019 | | 24-May-2019 | | 24-May-2019 | | 24-May-2019 | |
| | Asbestos Lab: | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | | |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total PCBs (7 Congeners) | N | 2815 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Phenols | U | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 |

| Client: IGSL | | Chemtest Job No.: | | 19-19643 | | 19-19643 | | 19-19643 | | 19-19643 | | |
|-------------------------------------|---------|----------------------|-------|-------------|----------------------|-------------|----------------------|-------------|----------------------|-------------|----------------------|--|
| Quotation No.: | | Chemtest Sample ID.: | | 841075 | | 841076 | | 841077 | | 841078 | | |
| Order No.: | | Client Sample Ref.: | | AA99931 | | AA99932 | | AA99927 | | AA99929 | | |
| | | Sample Location: | | TP08 | | TP08 | | TP09 | | TP09 | | |
| | | Sample Type: | | SOIL | | SOIL | | SOIL | | SOIL | | |
| | | Top Depth (m): | | 0.50 | | 1.00 | | 0.50 | | 2.00 | | |
| | | Bottom Depth (m): | | 0.50 | | 1.00 | | 0.50 | | 2.00 | | |
| | | Date Sampled: | | 24-May-2019 | | 24-May-2019 | | 24-May-2019 | | 24-May-2019 | | |
| | | Asbestos Lab: | | COVENTRY | | COVENTRY | | COVENTRY | | COVENTRY | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | |
| ACM Type | U | 2192 | | N/A | | | | | | | | |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | | No Asbestos Detected | | No Asbestos Detected | | No Asbestos Detected | |
| ACM Detection Stage | U | 2192 | | N/A | | | | | | | | |
| Moisture | N | 2030 | % | 0.020 | 13 | | 10 | | 13 | | 10 | |
| pH | U | 2010 | | N/A | | | | | | | | |
| Boron (Hot Water Soluble) | U | 2120 | mg/kg | 0.40 | < 0.40 | | < 0.40 | | < 0.40 | | < 0.40 | |
| Sulphate (2:1 Water Soluble) as SO4 | U | 2120 | g/l | 0.010 | | | | | | | | |
| Sulphur (Elemental) | U | 2180 | mg/kg | 1.0 | 52 | | < 1.0 | | 1.0 | | 1.3 | |
| Cyanide (Total) | U | 2300 | mg/kg | 0.50 | [B] < 0.50 | | [B] < 0.50 | | [B] < 0.50 | | [B] < 0.50 | |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 18 | | 15 | | 13 | | 17 | |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | 0.046 | | 0.010 | | < 0.010 | | < 0.010 | |
| Arsenic | U | 2450 | mg/kg | 1.0 | 26 | | 26 | | 24 | | 23 | |
| Barium | U | 2450 | mg/kg | 10 | 41 | | 41 | | 39 | | 33 | |
| Cadmium | U | 2450 | mg/kg | 0.10 | 2.0 | | 1.9 | | 1.9 | | 2.0 | |
| Chromium | U | 2450 | mg/kg | 1.0 | 14 | | 15 | | 15 | | 11 | |
| Molybdenum | U | 2450 | mg/kg | 2.0 | 3.7 | | 3.3 | | 2.9 | | 3.3 | |
| Antimony | N | 2450 | mg/kg | 2.0 | 4.0 | | 3.5 | | 3.0 | | 2.3 | |
| Copper | U | 2450 | mg/kg | 0.50 | 24 | | 23 | | 22 | | 16 | |
| Mercury | U | 2450 | mg/kg | 0.10 | < 0.10 | | < 0.10 | | < 0.10 | | < 0.10 | |
| Nickel | U | 2450 | mg/kg | 0.50 | 43 | | 40 | | 41 | | 31 | |
| Lead | U | 2450 | mg/kg | 0.50 | 16 | | 26 | | 17 | | 13 | |
| Selenium | U | 2450 | mg/kg | 0.20 | < 0.20 | | < 0.20 | | < 0.20 | | 0.48 | |
| Zinc | U | 2450 | mg/kg | 0.50 | 53 | | 59 | | 59 | | 72 | |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 14 | | 15 | | 15 | | 11 | |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | | < 0.50 | | < 0.50 | | < 0.50 | |
| Total Organic Carbon | U | 2625 | % | 0.20 | 0.31 | | 0.24 | | 0.36 | | 0.29 | |
| Mineral Oil | N | 2670 | mg/kg | 10 | < 10 | | < 10 | | < 10 | | < 10 | |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Aliphatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Aliphatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Aliphatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Aliphatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Aliphatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | | [B] < 1.0 | |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 | | [B] < 5.0 | | [B] < 5.0 | | [B] < 5.0 | |

| Client: IGSL | Chemtest Job No.: | 19-19643 | 19-19643 | 19-19643 | 19-19643 |
|------------------------------|----------------------|-------------|-------------|-------------|-------------|
| Quotation No.: | Chemtest Sample ID.: | 841075 | 841076 | 841077 | 841078 |
| Order No.: | Client Sample Ref.: | AA99931 | AA99932 | AA99927 | AA99929 |
| | Sample Location: | TP08 | TP08 | TP09 | TP09 |
| | Sample Type: | SOIL | SOIL | SOIL | SOIL |
| | Top Depth (m): | 0.50 | 1.00 | 0.50 | 2.00 |
| | Bottom Depth (m): | 0.50 | 1.00 | 0.50 | 2.00 |
| | Date Sampled: | 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 |
| | Asbestos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Aromatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Aromatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Aromatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [B] < 10 |
| Benzene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 |
| Toluene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 |
| Ethylbenzene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 |
| m & p-Xylene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 |
| o-Xylene | U | 2760 | µg/kg | 1.0 | [B] < 1.0 |
| Methyl Tert-Butyl Ether | U | 2760 | µg/kg | 1.0 | [B] < 1.0 |
| Naphthalene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 |
| Acenaphthene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Fluorene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Phenanthrene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[a]anthracene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Chrysene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[b]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[k]fluoranthene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[a]pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | U | 2800 | mg/kg | 0.10 | < 0.10 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 |

Results - Soil

| | | | | |
|--------------------------|------------------------------------|-------------|--------------|-------------|
| Client: IGSL | Chemtest Job No.: 19-19643 | 19-19643 | 19-19643 | 19-19643 |
| Quotation No.: | Chemtest Sample ID.: 841076 | 841076 | 841077 | 841078 |
| Order No.: | Client Sample Ref.: AA99931 | AA99932 | AA99927 | AA99929 |
| | Sample Location: TP08 | TP08 | TP09 | TP09 |
| | Sample Type: SOIL | SOIL | SOIL | SOIL |
| | Top Depth (m): 0.50 | 1.00 | 0.50 | 2.00 |
| | Bottom Depth (m): 0.50 | 1.00 | 0.50 | 2.00 |
| | Date Sampled: 24-May-2019 | 24-May-2019 | 24-May-2019 | 24-May-2019 |
| | Asbestos Lab: COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD |
| PCB 118 | U | 2815 | mg/kg | 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 |
| PCB 138 | U | 2815 | mg/kg | 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 |
| Total PCBs (7 Congeners) | N | 2815 | mg/kg | 0.10 |
| Total Phenols | U | 2920 | mg/kg | 0.30 |
| | | | | < 0.010 |
| | | | | < 0.010 |
| | | | | < 0.010 |
| | | | | < 0.010 |
| | | | | < 0.10 |
| | | | | < 0.30 |

Results - Single Stage WAC

Project: 21813 Ailrton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Sample Ref: 841051

Sample ID: 38092

Sample Location: BH2

Top Depth(m): 1.00

Bottom Depth(m): 1.00

Sampling Date: 31-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 0.40 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 2.3 | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | <0.010 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | <0.10 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | <10 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | <2.0 | -- | -- |
| pH | 2010 | U | | 8.6 | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.095 | To evaluate | To evaluate |
| Eluate Analysis | | | | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | 10:1 Eluate mg/l | <0.050 | 2 | 25 |
| Barium | 1450 | U | <0.0010 | <0.50 | 100 | 300 |
| Cadmium | 1450 | U | <0.00010 | <0.010 | 0.04 | 5 |
| Chromium | 1450 | U | <0.0010 | <0.050 | 0.5 | 70 |
| Copper | 1450 | U | <0.0010 | <0.050 | 2 | 100 |
| Mercury | 1450 | U | <0.00050 | <0.0050 | 0.01 | 2 |
| Molybdenum | 1450 | U | 0.0020 | <0.050 | 0.5 | 30 |
| Nickel | 1450 | U | <0.0010 | <0.050 | 0.4 | 40 |
| Lead | 1450 | U | <0.0010 | <0.010 | 0.5 | 50 |
| Antimony | 1450 | U | <0.0010 | <0.010 | 0.06 | 5 |
| Selenium | 1450 | U | <0.0010 | <0.010 | 0.1 | 7 |
| Zinc | 1450 | U | <0.0010 | <0.50 | 4 | 200 |
| Chloride | 1220 | U | 3.5 | 35 | 800 | 25000 |
| Fluoride | 1220 | U | 0.19 | 1.9 | 10 | 500 |
| Sulphate | 1220 | U | 2.3 | 23 | 1000 | 50000 |
| Total Dissolved Solids | 1020 | N | 53 | 530 | 4000 | 100000 |
| Phenol Index | 1920 | U | <0.030 | <0.30 | 1 | -- |
| Dissolved Organic Carbon | 1610 | U | 4.8 | <50 | 500 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 12 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Sample ID: 841052

Sample Ref: 117468

Sample Location: BH3

Top Depth(m): 1.00

Bottom Depth(m): 1.00

Sampling Date: 31-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|------------------------------------|---|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 0.40 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 2.1 | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | <0.010 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | <0.10 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | <10 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | <2.0 | -- | -- |
| pH | 2010 | U | | 8.7 | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.097 | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | 10:1 Eluate mg/kg | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | |
| Arsenic | 1450 | U | <0.0010 | <0.050 | 0.5 | 25 |
| Barium | 1450 | U | <0.0010 | <0.50 | 20 | 100 |
| Cadmium | 1450 | U | <0.00010 | <0.010 | 0.04 | 1 |
| Chromium | 1450 | U | <0.0010 | <0.050 | 0.5 | 10 |
| Copper | 1450 | U | <0.0010 | <0.050 | 2 | 50 |
| Mercury | 1450 | U | <0.00050 | <0.0050 | 0.01 | 0.2 |
| Molybdenum | 1450 | U | 0.0018 | <0.050 | 0.5 | 10 |
| Nickel | 1450 | U | <0.0010 | <0.050 | 0.4 | 10 |
| Lead | 1450 | U | <0.0010 | <0.010 | 0.5 | 10 |
| Antimony | 1450 | U | <0.0010 | <0.010 | 0.06 | 0.7 |
| Selenium | 1450 | U | <0.0010 | <0.010 | 0.1 | 0.5 |
| Zinc | 1450 | U | <0.0010 | <0.50 | 4 | 50 |
| Chloride | 1220 | U | 1.5 | 15 | 800 | 15000 |
| Fluoride | 1220 | U | 0.19 | 1.9 | 10 | 150 |
| Sulphate | 1220 | U | 1.7 | 17 | 1000 | 20000 |
| Total Dissolved Solids | 1020 | N | 57 | 570 | 4000 | 60000 |
| Phenol Index | 1920 | U | <0.030 | <0.30 | 1 | -- |
| Dissolved Organic Carbon | 1610 | U | 3.7 | <50 | 500 | 800 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 10 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841054

Sample Ref: 10696

Sample ID: BH4

Sample Location: 1.00

Top Depth(m): 1.00

Bottom Depth(m): 30-May-2019

Sampling Date: 30-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|------------------|--|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0040 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.1 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.15 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 1.9 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 49 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 3.5 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 12 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841055

Sample Ref: 11401

Sample ID: BH5

Sample Location: 1.00

Top Depth(m): 1.00

Bottom Depth(m): 29-May-2019

Sampling Date: 29-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.0010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | < 0.0010 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 4.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.19 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 1.2 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 52 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.8 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 5.8 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841056

Sample Ref: 114409

Sample ID: BH6

Sample Location: 1.00

Top Depth(m): 1.00

Bottom Depth(m): 30-May-2019

Sampling Date: 30-May-2019

| Determinand | SOP | Accred. | Units | 10:1 Eluate mg/l | 10:1 Eluate mg/kg | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
|------------------------------|------|---------|----------|------------------|-------------------|----------------------|--|--------------------------|
| Total Organic Carbon | 2625 | U | % | | 0.44 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | | 2.8 | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | | <0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | | <0.10 | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | | <10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | | <2.0 | 100 | -- | -- |
| pH | 2010 | U | | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | | 0.17 | -- | To evaluate | To evaluate |
| Eluate Analysis | | | | | | | | |
| Arsenic | 1450 | U | <0.0010 | | <0.050 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0012 | | <0.50 | 20 | 100 | 300 |
| Cadmium | 1450 | U | <0.00010 | | <0.010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | <0.0010 | | <0.050 | 0.5 | 10 | 70 |
| Copper | 1450 | U | <0.0010 | | <0.050 | 2 | 50 | 100 |
| Mercury | 1450 | U | <0.00050 | | <0.0050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | <0.0010 | | <0.050 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | <0.0010 | | <0.050 | 0.4 | 10 | 40 |
| Lead | 1450 | U | <0.0010 | | <0.010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | <0.0010 | | <0.010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | <0.0010 | | <0.010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | <0.0010 | | <0.50 | 4 | 50 | 200 |
| Chloride | 1220 | U | <1.0 | | <10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.17 | | 1.7 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 3.1 | | 31 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 53 | | 530 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | <0.030 | | <0.30 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 5.0 | | 50 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 8.6 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Sample ID: 841057

Sample Ref: 114415

Sample Location: BH7

Top Depth(m): 1.00

Bottom Depth(m): 1.00

Sampling Date: 27-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | < 0.0012 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.1 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.27 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 2.4 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 46 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.1 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 11 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841058

Sample Ref: AA99927

Sample ID: TP01

Sample Location: 0.50

Top Depth(m): 0.50

Bottom Depth(m): 27-May-2019

Sampling Date: 27-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | <0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | <0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | <0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | <0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | <0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0031 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | <0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | <0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | <0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | <0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | <0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 6.8 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.19 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 8.8 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 58 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | <0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.1 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 11 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No.: 19-19643

Sample ID: 841059

Sample Ref: AA99928

Sample ID: TP01

Sample Location: 1.00

Top Depth(m): 1.00

Bottom Depth(m): 1.00

Sampling Date: 27-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | <0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | <0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | <0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | <0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | <0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | <0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | <0.0039 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | <0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | <0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | <0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | <0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | <0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.17 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 3.4 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 50 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | <0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 3.9 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.2 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643
Chemtest Sample ID: 841061
Sample Ref: AA113509
Sample ID: TP02
Sample Location: 0.50
Top Depth(m): 0.50
Bottom Depth(m): 0.50
Sampling Date: 27-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|------------------------------------|---|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 0.34 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 2.3 | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | [B] < 0.010 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | < 0.10 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | [B] < 10 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | -- | -- |
| pH | 2010 | U | | 8.8 | > 6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.098 | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | 10:1 Eluate mg/kg | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | |
| Arsenic | 1450 | U | < 0.0010 | < 0.050 | 0.5 | 2 |
| Barium | 1450 | U | 0.0011 | < 0.50 | 20 | 100 |
| Cadmium | 1450 | U | < 0.00010 | < 0.010 | 0.04 | 1 |
| Chromium | 1450 | U | < 0.0010 | < 0.050 | 0.5 | 10 |
| Copper | 1450 | U | < 0.0010 | < 0.050 | 2 | 50 |
| Mercury | 1450 | U | < 0.00050 | < 0.0050 | 0.01 | 0.2 |
| Molybdenum | 1450 | U | 0.0023 | < 0.050 | 0.5 | 10 |
| Nickel | 1450 | U | < 0.0010 | < 0.050 | 0.4 | 10 |
| Lead | 1450 | U | < 0.0010 | < 0.010 | 0.5 | 10 |
| Antimony | 1450 | U | < 0.0010 | < 0.010 | 0.06 | 0.7 |
| Selenium | 1450 | U | < 0.0010 | < 0.010 | 0.1 | 0.5 |
| Zinc | 1450 | U | < 0.0010 | < 0.50 | 4 | 50 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 |
| Fluoride | 1220 | U | 0.17 | 1.7 | 10 | 150 |
| Sulphate | 1220 | U | 1.9 | 19 | 1000 | 20000 |
| Total Dissolved Solids | 1020 | N | 49 | 490 | 4000 | 60000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | -- |
| Dissolved Organic Carbon | 1610 | U | 4.3 | < 50 | 500 | 800 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 9.7 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Sample Ref: 841062

Sample ID: TP02

Sample Location: 2.00

Top Depth(m): 2.00

Bottom Depth(m): 24-May-2019

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0012 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0050 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 2.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.18 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 2.1 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 56 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 2.7 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 10 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Ailrton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841063

Sample Ref: AA99943

Sample ID:

Sample Location: TP03

Top Depth(m): 0.50

Bottom Depth(m): 0.50

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0011 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0034 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.17 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 48 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 3.8 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 10 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Sample ID: 841064

Sample Ref: AA99944

Sample ID: TP03

Sample Location: 1.00

Top Depth(m): 1.00

Bottom Depth(m): 24-May-2019

Sampling Date:

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0021 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0011 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.20 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 2.6 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 52 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.0 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 17 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airlton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841065

Sample Ref: AA99945

Sample ID: TP03

Sample Location: 2.00

Top Depth(m): 2.00

Bottom Depth(m): 2.00

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0011 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0037 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.13 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 48 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.4 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 12 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841066

Sample Ref: AA99938

Sample ID:

Sample Location: TP04

Top Depth(m): 0.50

Bottom Depth(m): 0.50

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | < 0.0010 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.19 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 49 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.5 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 16 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Sample ID: 841067

Sample Ref: AA99939

Sample ID: TP04

Top Depth(m): 1.00

Bottom Depth(m): 1.00

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | < 0.0016 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.9 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.16 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 47 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.3 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 11 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841069

Sample Ref: AA113513

Sample ID: TP05

Sample Location: 0.50

Top Depth(m): 0.50

Bottom Depth(m): 27-May-2019

Sampling Date: 27-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0021 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.0010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | < 0.0010 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | ~4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.18 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 7.6 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 61 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 3.5 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 19 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for-hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841070

Sample Ref: AA113514

Sample ID: TP05

Sample Location: 1.00

Top Depth(m): 1.00

Bottom Depth(m): 27-May-2019

Sampling Date: 27-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | 0.0015 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0041 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 34 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.18 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 3.6 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 49 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 3.7 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 11 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|-------------|---------|------------------|------------------------------------|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Chemtest Job No: | 19-19643 | | | | | |
| Chemtest Sample ID: | 841071 | | | | | |
| Sample Ref: | AA113516 | | | | | |
| Sample ID: | TP06 | | | | | |
| Sample Location: | 0.50 | | | | | |
| Top Depth(m): | 0.50 | | | | | |
| Bottom Depth(m): | 27-May-2019 | | | | | |
| Sampling Date: | | | | | | |
| Total Organic Carbon | 2625 | U | % | 0.38 | 3 | 6 |
| Loss On Ignition | 2610 | U | % | 2.1 | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | [B] < 0.010 | 6 | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | < 0.10 | 1 | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | [B] < 10 | 500 | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- |
| pH | 2010 | U | | 8.8 | -- | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.095 | -- | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | 10:1 Eluate mg/kg | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | |
| Arsenic | 1450 | U | < 0.0010 | < 0.050 | 0.5 | 25 |
| Barium | 1450 | U | 0.0015 | < 0.50 | 20 | 300 |
| Cadmium | 1450 | U | < 0.00010 | < 0.010 | 0.04 | 1 |
| Chromium | 1450 | U | < 0.0010 | < 0.050 | 0.5 | 70 |
| Copper | 1450 | U | < 0.0010 | < 0.050 | 2 | 100 |
| Mercury | 1450 | U | < 0.00050 | < 0.0050 | 0.01 | 2 |
| Molybdenum | 1450 | U | 0.0016 | < 0.050 | 0.5 | 30 |
| Nickel | 1450 | U | < 0.0010 | < 0.050 | 0.4 | 40 |
| Lead | 1450 | U | < 0.0010 | < 0.010 | 0.5 | 50 |
| Antimony | 1450 | U | < 0.0010 | < 0.010 | 0.06 | 5 |
| Selenium | 1450 | U | < 0.0010 | < 0.010 | 0.1 | 7 |
| Zinc | 1450 | U | < 0.0010 | < 0.50 | 4 | 200 |
| Chloride | 1220 | U | 5.0 | 50 | 800 | 25000 |
| Fluoride | 1220 | U | 0.18 | 1.8 | 10 | 500 |
| Sulphate | 1220 | U | 6.1 | 61 | 1000 | 50000 |
| Total Dissolved Solids | 1020 | N | 55 | 550 | 4000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | -- |
| Dissolved Organic Carbon | 1610 | U | 4.9 | < 50 | 500 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 10 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Ailton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841072

Sample Ref: AA113518

Sample ID:

Sample Location: TP06

Top Depth(m): 2.00

Bottom Depth(m): 2.00

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria Limits | | |
|------------------------------|------|---------|--------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | mg/l | 0.5 | 2 | 25 |
| Barium | 1450 | U | <0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | 0.0022 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | <0.00010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | <0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | <0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0044 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | <0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | <0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | <0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | <0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | <0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 21 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.14 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 3.6 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 53 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | <0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 3.7 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.7 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841073

Sample Ref: AA99935

Sample ID:

Sample Location: TP07

Top Depth(m): 0.50

Bottom Depth(m): 0.50

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | < 0.0010 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.18 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 48 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 5.6 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 30 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Ailrton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841074

Sample Ref: AA99936

Sample ID:

Sample Location: TP07

Top Depth(m): 1.00

Bottom Depth(m): 1.00

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|--------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | <0.20 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 1.7 | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | [B] <0.010 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | <0.10 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | [B] <10 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | <2.0 | -- | -- |
| pH | 2010 | U | -- | 8.7 | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.094 | To evaluate | To evaluate |
| Eluate Analysis | | | | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | mg/l | <0.050 | 2 | 25 |
| Barium | 1450 | U | mg/l | <0.0010 | 20 | 100 |
| Cadmium | 1450 | U | mg/l | <0.010 | 0.04 | 1 |
| Chromium | 1450 | U | mg/l | <0.0010 | 0.5 | 10 |
| Copper | 1450 | U | mg/l | <0.050 | 2 | 50 |
| Mercury | 1450 | U | mg/l | <0.0050 | 0.01 | 0.2 |
| Molybdenum | 1450 | U | mg/l | <0.0025 | 0.5 | 10 |
| Nickel | 1450 | U | mg/l | <0.050 | 0.4 | 10 |
| Lead | 1450 | U | mg/l | <0.0010 | 0.5 | 10 |
| Antimony | 1450 | U | mg/l | <0.0010 | 0.06 | 0.7 |
| Selenium | 1450 | U | mg/l | <0.0010 | 0.1 | 0.5 |
| Zinc | 1450 | U | mg/l | <0.0010 | 4 | 50 |
| Chloride | 1220 | U | mg/l | 15 | 800 | 25000 |
| Fluoride | 1220 | U | mg/l | 1.6 | 10 | 150 |
| Sulphate | 1220 | U | mg/l | 14 | 1000 | 50000 |
| Total Dissolved Solids | 1020 | N | mg/l | 460 | 4000 | 60000 |
| Phenol Index | 1920 | U | mg/l | <0.030 | 1 | -- |
| Dissolved Organic Carbon | 1610 | U | mg/l | <50 | 500 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 8.4 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643
Sample ID: 841075
Sample Ref: AA99931
Sample Location: TP08
Top Depth(m): 0.50
Bottom Depth(m): 0.50
Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
|------------------------------|------|---------|-------|--------------------|---|--|--------------------------|
| | | | % | mg/kg | | | |
| Total Organic Carbon | 2625 | U | | 0.31 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | | 2.2 | -- | -- | 10 |
| Total BTEX | 2760 | U | | [B] < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | | < 0.10 | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | | [B] < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | | < 2.0 | 100 | -- | -- |
| pH | 2010 | U | | 8.3 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | | 0.15 | -- | To evaluate | To evaluate |
| Eluate Analysis | | | | 10:1 Eluate | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | | 0.0019 | 20 | 100 | 300 |
| Cadmium | 1450 | U | | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | | 0.0031 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | | 1.7 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | | 0.22 | 10 | 150 | 500 |
| Sulphate | 1220 | U | | 17 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | | 72 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | | 5.0 | 500 | 800 | 1000 |

| Solid Information | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 13 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841076

Sample Ref: AA99932

Sample ID: TP08

Sample Location: 1.00

Top Depth(m): 1.00

Bottom Depth(m): 24-May-2019

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | | 10:1 Eluate mg/kg | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|-------|--------------------------|---|--|--------------------------|
| | | | % | mg/kg | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | | 0.24 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | | 1.9 | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | | [B] < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | | < 0.10 | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | | [B] < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | | < 2.0 | 100 | -- | -- |
| pH | 2010 | U | | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | | 0.18 | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | | 10:1 Eluate mg/kg | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | | < 0.050 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | | < 0.50 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | | < 0.010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | | < 0.050 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | | < 0.050 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | | < 0.0050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0027 | | < 0.050 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | | < 0.050 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | | < 0.010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | | < 0.010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | | < 0.010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | | < 0.50 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.6 | | 16 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.15 | | 1.5 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 3.6 | | 36 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 52 | | 520 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | | < 0.30 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 3.5 | | < 50 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 10 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No: 19-19643

Chemtest Sample ID: 841077

Sample Ref: AA99927

Sample ID: TP09

Sample Location: 0.50

Top Depth(m): 0.50

Bottom Depth(m): 24-May-2019

Sampling Date:

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|-------------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | -- | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | 1 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 100 | -- | -- |
| pH | 2010 | U | | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | -- | To evaluate | To evaluate |
| Eluate Analysis | | | 10:1 Eluate mg/l | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | < 0.0010 | 0.5 | 2 | 25 |
| Barium | 1450 | U | < 0.0010 | 20 | 100 | 300 |
| Cadmium | 1450 | U | < 0.00010 | 0.04 | 1 | 5 |
| Chromium | 1450 | U | < 0.0010 | 0.5 | 10 | 70 |
| Copper | 1450 | U | < 0.0010 | 2 | 50 | 100 |
| Mercury | 1450 | U | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1450 | U | 0.0014 | 0.5 | 10 | 30 |
| Nickel | 1450 | U | < 0.0010 | 0.4 | 10 | 40 |
| Lead | 1450 | U | < 0.0010 | 0.5 | 10 | 50 |
| Antimony | 1450 | U | < 0.0010 | 0.06 | 0.7 | 5 |
| Selenium | 1450 | U | < 0.0010 | 0.1 | 0.5 | 7 |
| Zinc | 1450 | U | < 0.0010 | 4 | 50 | 200 |
| Chloride | 1220 | U | 2.5 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.27 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 2.0 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 51 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | 1 | -- | -- |
| Dissolved Organic Carbon | 1610 | U | 4.1 | 500 | 800 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 13 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 21813 Airton Road, Tallaght, Dublin (BMCE)

Chemtest Job No.: 19-19643

Chemtest Sample ID: 841078

Sample Ref: AA99929

Sample ID: TP09

Sample Location: 2.00

Top Depth(m): 2.00

Bottom Depth(m): 2.00

Sampling Date: 24-May-2019

| Determinand | SOP | Accred. | Units | Landfill Waste Acceptance Criteria | | |
|------------------------------|------|---------|------------------|---|--|--------------------------|
| | | | | Inert Waste Landfill | Stable, Non-reactive hazardous waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Total Organic Carbon | 2625 | U | % | 0.29 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 1.6 | -- | 10 |
| Total BTEX | 2760 | U | mg/kg | [B] < 0.010 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | U | mg/kg | < 0.10 | -- | -- |
| TPH Total WAC (Mineral Oil) | 2670 | U | mg/kg | [B] < 10 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | -- | -- |
| pH | 2010 | U | | 8.8 | > 6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.14 | To evaluate | To evaluate |
| Eluate Analysis | | | | Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg | | |
| Arsenic | 1450 | U | 10:1 Eluate mg/l | < 0.050 | 0.5 | 25 |
| Barium | 1450 | U | < 0.0010 | < 0.50 | 20 | 300 |
| Cadmium | 1450 | U | 0.0012 | < 0.10 | 0.04 | 5 |
| Chromium | 1450 | U | < 0.0010 | < 0.050 | 0.5 | 70 |
| Copper | 1450 | U | < 0.0010 | < 0.050 | 2 | 100 |
| Mercury | 1450 | U | < 0.00050 | < 0.050 | 0.01 | 2 |
| Molybdenum | 1450 | U | 0.0021 | < 0.050 | 0.5 | 30 |
| Nickel | 1450 | U | < 0.0010 | < 0.050 | 0.4 | 40 |
| Lead | 1450 | U | < 0.0010 | < 0.010 | 0.5 | 50 |
| Antimony | 1450 | U | < 0.0010 | < 0.010 | 0.06 | 5 |
| Selenium | 1450 | U | < 0.0010 | < 0.010 | 0.1 | 7 |
| Zinc | 1450 | U | < 0.0010 | < 0.50 | 4 | 200 |
| Chloride | 1220 | U | 26 | 260 | 800 | 25000 |
| Fluoride | 1220 | U | 0.16 | 1.6 | 10 | 500 |
| Sulphate | 1220 | U | 8.4 | 84 | 1000 | 50000 |
| Total Dissolved Solids | 1020 | N | 48 | 480 | 4000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | -- |
| Dissolved Organic Carbon | 1610 | U | 3.8 | < 50 | 500 | 1000 |

Solid Information

| | |
|-----------------------------|-------|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 10 |

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|------------------|---------------|--------------------|----------------------|
| 841057 | 114415 | | BH7 | 27-May-2019 | B | Amber Glass 250ml |
| 841057 | 114415 | | BH7 | 27-May-2019 | B | Amber Glass 60ml |
| 841058 | AA99927 | | TP01 | 27-May-2019 | B | Amber Glass 250ml |
| 841058 | AA99927 | | TP01 | 27-May-2019 | B | Amber Glass 60ml |
| 841059 | AA99928 | | TP01 | 27-May-2019 | B | Amber Glass 250ml |
| 841059 | AA99928 | | TP01 | 27-May-2019 | B | Amber Glass 60ml |
| 841061 | AA113509 | | TP02 | 27-May-2019 | B | Amber Glass 250ml |
| 841061 | AA113509 | | TP02 | 27-May-2019 | B | Amber Glass 60ml |
| 841062 | | | TP02 | 24-May-2019 | B | Amber Glass 250ml |
| 841062 | | | TP02 | 24-May-2019 | B | Amber Glass 60ml |
| 841063 | AA99943 | | TP03 | 24-May-2019 | B | Amber Glass 250ml |
| 841063 | AA99943 | | TP03 | 24-May-2019 | B | Amber Glass 60ml |
| 841064 | AA99944 | | TP03 | 24-May-2019 | B | Amber Glass 250ml |
| 841064 | AA99944 | | TP03 | 24-May-2019 | B | Amber Glass 60ml |
| 841065 | AA99945 | | TP03 | 24-May-2019 | B | Amber Glass 250ml |
| 841065 | AA99945 | | TP03 | 24-May-2019 | B | Amber Glass 60ml |
| 841066 | AA99938 | | TP04 | 24-May-2019 | B | Amber Glass 250ml |
| 841066 | AA99938 | | TP04 | 24-May-2019 | B | Amber Glass 60ml |
| 841067 | AA99939 | | TP04 | 24-May-2019 | B | Amber Glass 250ml |
| 841067 | AA99939 | | TP04 | 24-May-2019 | B | Amber Glass 60ml |
| 841069 | AA113513 | | TP05 | 27-May-2019 | B | Amber Glass 250ml |
| 841069 | AA113513 | | TP05 | 27-May-2019 | B | Amber Glass 60ml |

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|------------------|---------------|--------------------|----------------------|
| 841070 | AA113514 | | TP05 | 27-May-2019 | B | Amber Glass 250ml |
| 841070 | AA113514 | | TP05 | 27-May-2019 | B | Amber Glass 60ml |
| 841071 | AA113516 | | TP06 | 27-May-2019 | B | Amber Glass 250ml |
| 841071 | AA113516 | | TP06 | 27-May-2019 | B | Amber Glass 60ml |
| 841072 | AA113518 | | TP06 | 24-May-2019 | B | Amber Glass 250ml |
| 841072 | AA113518 | | TP06 | 24-May-2019 | B | Amber Glass 60ml |
| 841073 | AA99935 | | TP07 | 24-May-2019 | B | Amber Glass 250ml |
| 841073 | AA99935 | | TP07 | 24-May-2019 | B | Amber Glass 60ml |
| 841074 | AA99936 | | TP07 | 24-May-2019 | B | Amber Glass 250ml |
| 841074 | AA99936 | | TP07 | 24-May-2019 | B | Amber Glass 60ml |
| 841075 | AA99931 | | TP08 | 24-May-2019 | B | Amber Glass 250ml |
| 841075 | AA99931 | | TP08 | 24-May-2019 | B | Amber Glass 60ml |
| 841076 | AA99932 | | TP08 | 24-May-2019 | B | Amber Glass 250ml |
| 841076 | AA99932 | | TP08 | 24-May-2019 | B | Amber Glass 60ml |
| 841077 | AA99927 | | TP09 | 24-May-2019 | B | Amber Glass 250ml |
| 841077 | AA99927 | | TP09 | 24-May-2019 | B | Amber Glass 60ml |
| 841078 | AA99929 | | TP09 | 24-May-2019 | B | Amber Glass 250ml |
| 841078 | AA99929 | | TP09 | 24-May-2019 | B | Amber Glass 60ml |

| SOP | Title | Parameters included | Method summary |
|------|--|--|--|
| 1020 | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Conductivity Meter |
| 1220 | Anions, Alkalinity & Ammonium in Waters | Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium | Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser. |
| 1450 | Metals in Waters by ICP-MS | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS). |
| 1610 | Total/Dissolved Organic Carbon in Waters | Organic Carbon | TOC Analyser using Catalytic Oxidation |
| 1920 | Phenols in Waters by HPLC | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded. | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection. |
| 2010 | pH Value of Soils | pH | pH Meter |
| 2015 | Acid Neutralisation Capacity | Acid Reserve | Titration |
| 2030 | Moisture and Stone Content of Soils (Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2180 | Sulphur (Elemental) in Soils by HPLC | Sulphur | Dichloromethane extraction / HPLC with UV detection |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2325 | Sulphide in Soils | Sulphide | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine. |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2610 | Loss on Ignition | loss on ignition (LOI) | Determination of the proportion by mass that is lost from a soil by ignition at 550°C. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40 | Dichloromethane extraction / GC-FID |
| 2680 | TPH A/A Split | Aliphatics: >C5–C6, >C6–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 | Dichloromethane extraction / GCxGC FID detection |

| SOP | Title | Parameters included | Method summary |
|------|--|---|--|
| 2760 | Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule | Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds. |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS |
| 2815 | Polychlorinated Biphenyls (PCB) ICES7 Congeners in Soils by GC-MS | ICES7 PCB congeners | Acetone/Hexane extraction / GC-MS |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and Trimethylphenols Note: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |
| 640 | Characterisation of Waste (Leaching) | Waste material including soil, sludges and granular waste | Compliance Test for Leaching of Granular Waste Material and Sludge |

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Appendix VII Site Plan

NOTES

1. THIS REPORT IS THE PROPERTY OF THE CLIENT. IT IS TO BE USED ONLY FOR THE PROJECT AND LOCATION SPECIFICALLY IDENTIFIED. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE CONSULTANT. ANY UNAUTHORIZED USE OF THIS REPORT IS PROHIBITED.
2. BEFORE USING THIS REPORT, THE USER SHOULD BE AWARE OF THE FOLLOWING:
 - a. THIS REPORT IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT AND THE CONSULTANT HAS NOT CONDUCTED ANY VISUAL VERIFICATION OF THE INFORMATION PROVIDED.
 - b. THE CONSULTANT HAS NOT CONDUCTED ANY VISUAL VERIFICATION OF THE INFORMATION PROVIDED.
 - c. THE CONSULTANT HAS NOT CONDUCTED ANY VISUAL VERIFICATION OF THE INFORMATION PROVIDED.

| LEGEND | |
|--------|---|
| | BENCHMARKS TO BE TAKEN TO REFERENCE POINTS (TO OBTAIN COORDINATES) |
| | SOIL SAMPLES TO BE TAKEN TO OBTAIN EQUIVALENT CBR VALUE |
| | TRIAL PITS (TO OBTAIN SAMPLES FOR LABORATORY TESTING AND BATHING AT 3.3m DEPTH) |
| NOTES | |
| 1. | 24.15m CROWN |
| 2. | ENVIRONMENTAL SAMPLE AT 1.5m DEPTH |
| 3. | ENVIRONMENTAL SAMPLE AT 3.3m DEPTH |
| 4. | PROVIDED CONCRETE SLAB TO BE BROKEN OFF IN EXISTING BUILDING AND ROAD |



SITE INVESTIGATION
SCALE 1:1,100

| NO. | DATE | ISSUED FOR | DESCRIPTION |
|-----|----------|-------------------|-------------|
| T1 | 20.04.19 | ISSUED FOR TENDER | |

DRAWN BY: [Name]
CHECKED BY: [Name]

TENDER

BM
BUREAU OF MEASUREMENT
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

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Australasian Consulting Engineers Inc.
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

CLIENT: AIRTRON ROAD PROPERTIES LTD
PROJECT NAME: AIRTRON ROAD DEVELOPMENT
SCALE: 1:1,100
MODEL NO.: [Number]
REVISION: [Number]
DATE: [Date]
SCALE: C1500
DATE: T1