Clonburris Phase 01

Part 8
Civil Engineering Report

South Dublin County Council

Project number: 60650394

April 2022

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	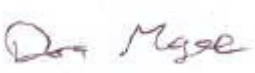		
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Revision History

Revision	Revision date	Details	Authorized	Name	Position
A	16/03/2022	Pre-Part 8	CH	Clodagh Holmes	Principal Engineer
B	013/04/2022	Part 8	CH	Clodagh Holmes	Principal Engineer

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1. Introduction

This report has been prepared in support of a Part 8 Planning Application, for a proposed residential development, by South Dublin County Council (SDCC) at Clonburris Phase 01, Co. Dublin.

The Clonburris Phase 01 site is a predominantly greenfield site with an existing traveller accommodation site located on the eastern section. This traveller accommodation site shall be incorporated within these Phase 01 plans.

The site forms part of the overall Clonburris Strategic Development Zone (SDZ) lands which encompassed 280 hectares located between Lucan, Liffey Valley Clondalkin and Adamstown, Co. Dublin. This was granted permission by An Bord Pleanala in May 2019 (Ref ABP-301962-18).

Clonburris Infrastructure Limited (CIL) was set up by all landowners within the overall SDZ (including South Dublin County Council) to examine the infrastructural works required to allow the development of individual land parcels in a cohesive manner. This includes the Link Road and its associated services.

The CIL have produced a series of strategic infrastructural documents, to support the planning application of the infrastructure works and were granted planning permission by SDCC under Plan. Reg. Ref. SDZ20A/0021 in August 2021. The CIL are currently undertaking the detailed design stage of the Link Road, foul and surface water networks and associated services.

AECOM have met with SDCC, CIL and their consultant engineers, DBFL Ltd, during the development of the scheme to discuss the challenges and solutions required to service the Clonburris Phase 01 site and appropriately connect into the foul and surface water networks, withing this Link Road. The existing traveller accommodation is to be retained and therefore site levels within the subject site need to take account of this retained accommodation at the appropriate access points.

The current proposals for 263 units are a mix of social and affordable single, 2 and 3 storey housing units, apartment and duplex blocks. Refer to the Site Plan and unit types in Metworks drawing CLON-MET-ZZ-ZZ-M3-A-101101.

1.1 Ground Investigation

Site investigation was caried out by IGSL Ltd in December 2021 and 3 no. infiltration tests were carried out as part of this investigation. AECOM are awaiting the full site investigation report.

2 no. infiltration tests (to the west and in the centre of the site) did not return an infiltration rate. An infiltration rate of 9.2 $x10^{-5}$ m/min was recorded in the east of the site in the second cycle (a rate of 9 $x10^{-5}$ m/min was recorded in the first cycle). Please refer to the site investigation report in Appendix A, an extract of the site plan/investigations carried out is shown below.

Figure 1.1: Locations of Infiltration Tests carried out during Site Investigation

TPO4, which was undertaken in the original CIL ground investigation in 2019, is located within the subject site as shown in the figure below. This trial pit indicated the presence of soft to firm grey mottled brown slightly sandy gravelly clay below a layer of 200mm of made ground and stiff black slightly sandy clay at 1.45m depth, with ground water encountered at 1.90m BGL.

Figure 1.2: Location of TP04 – extract from Site Investigation Ireland

2. Surface water

2.1 Surface Water Criteria

This chapter contains an outline of the philosophy and design criteria for surface water in the Clonburris Phase 01 site. It is AECOM's intention that the proposed surface water drainage system will be designed in accordance with the following documents:

- Greater Dublin Strategic Drainage Study (GDSDS)
- Greater Dublin Regional Code of Practice for Drainage Works
- Building Regulations Technical Guidance Document H: 2010 - Drainage and Water
- BS EN 752: Part 4: Drain and Sewer systems outside buildings: hydraulic design and environmental considerations
- CIRIA C753: 2015 – The SuDS Manual
- CIRIA C768: 2017 – Guidance on the Construction of SuDS
- Surface Water Strategy (undertaken by JBA in Sept. 2017) as part of the overall Clonburris SDZ.
- Clonburris Joint Infrastructure Works (JIW) – Surface Water Management Plan produced by DBFL for the CIL, December 2020
- SDCC SuDS Explanatory, Design and Evaluation Guide 2022

This section will outline the proposed surface water design intent.

2.2 Existing Surface Water

The Kilmahuddrick Stream flows south/north across the site. This stream will be culverted below the proposed Link Road as part of the CIL infrastructure works. This stream has been referred to and considered in the Surface Water Management Plan (SWMP).

Two ditches are present on the site, they join north west of the existing traveller accommodation on the site, before flowing west towards the Kilmahuddrick Stream. The full route, including the discharge point, of this ditch has not been fully determined from the topographical survey provided. These ditches were not referred to in the SWMP. These can be seen, partially, in Figure 2.1.

Following a site visit in early April 2021, AECOM noted there was more significant water than expected in this ditch. Therefore, the extent of the catchments of these ditches will be investigated further during Stage 2. AECOM advised the CIL/DBFL of these ditches during the meeting on the 20th April 2021.

On foot of these discussion, DBFL undertook a site visit and stated that the ditch appears to be an agricultural drainage ditch with standing water and no significant flow.

Therefore DBFL/CIL confirmed that, similar to the other ditches throughout the SDZ, the drainage paths will be maintained across the proposed link street until their upstream catchments are removed as part of the development drainage.

Figure 2.1 also shows the existing surface water records for the existing accommodation on the site. This shows a twin 600 mm concrete culvert discharging to the ditch, to the west of the existing development, and a 225 mm surface water sewer is also shown discharging to the ditch, further north. Refer to Appendix B for the surface water records provided by SDCC.

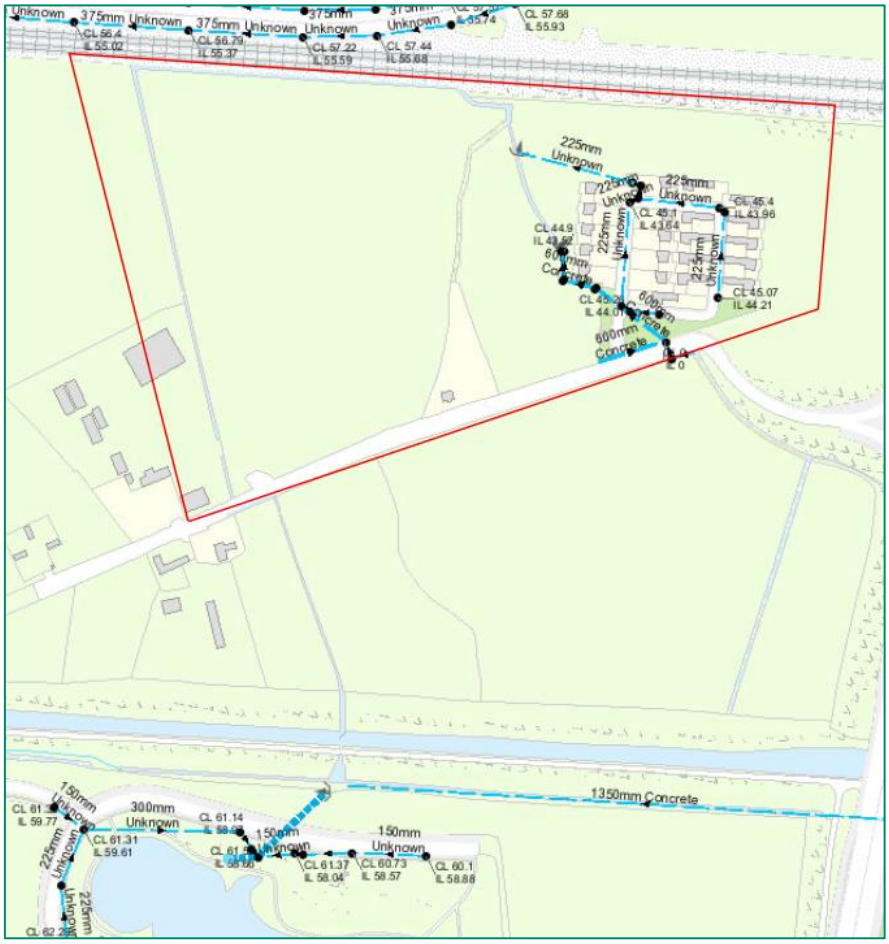


Figure 2.1: Surface Water Records (Source: SDCC)

2.3 Surface Water Management Plan (Dec 2020)

The CIL/DBFL Surface Water Management Plan (Dec 2020) has been informed by the Surface Water Strategy (undertaken by JBA in Sept 2017) as part of the overall Clonburris SDZ.

This CIL/DBFL report calculated a design discharge rate for the overall SDZ of 3.2 l/s/ha and adopted a design discharge rate of 3.1 l/s/ha in the design. This supersedes the JBA Surface Water Strategy, which assumed an allowable rate of 2.0 l/s/ha.

DBFL have used a greenfield runoff (QBAR) to design the attenuation volume, which is in line with GDSDS criterion 4 (river flood protection) for new developments, which states “maximum discharge rate of QBAR or 2 l/s/ha, whichever is greater, for all attenuation storage where separate long term storage cannot be provided”. As the calculated QBAR was greater than 2 l/s/ha and no “long term” storage will be provided, the QBAR should be used as runoff rate for the design of all attenuation storage.

2.4 Joint Infrastructure Works

As discussed above, the Clonburris Infrastructure Limited (CIL) works, proposed under Plan. Reg. SDZ20A/0021 include the Link Road, drainage and its associated services. It is intended to connect the surface water network for the site into the proposed 1500 mm diameter drainage spine, proposed under the planning application.

The Clonburris Phase 01 site is within sub-catchment 5 of the SWMP, refer to Figure 2.2 for an extract of the site’s location relative to sub-catchment 5, the site is indicatively outlined.

A regional pond (‘ATN-02’) is proposed by the CIL approx. 300 m downstream of the site, to attenuate the sub-catchment shown in red in Figure 2.2 below.

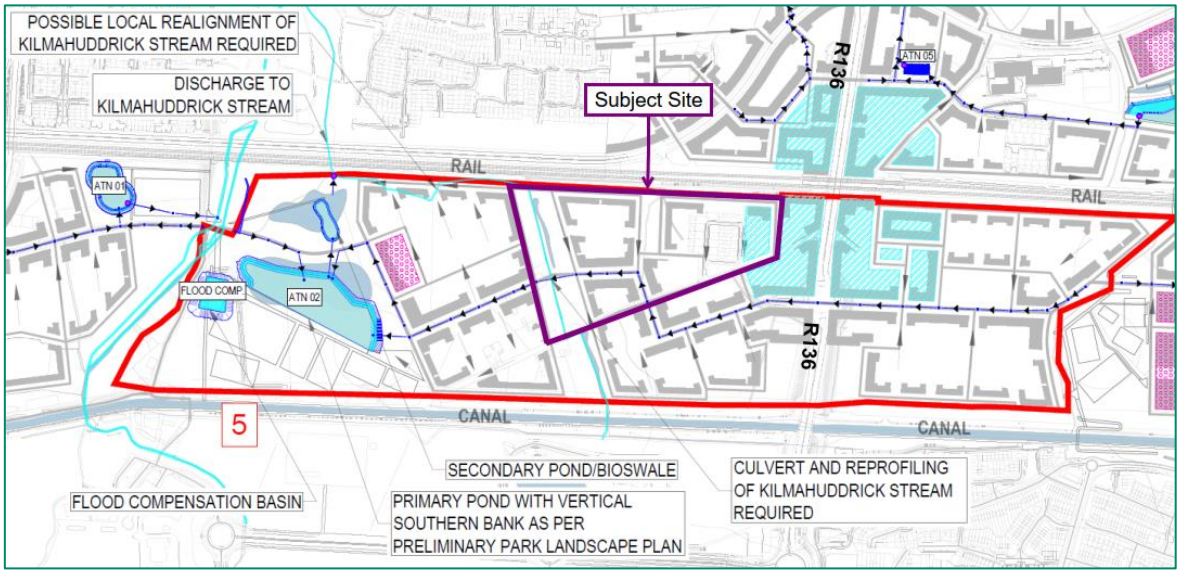


Figure 2.2: Extract from DBFL Surface Water Management Plan (Figure 7.6)

2.5 Clonburris Phase 01 Proposed Surface Water Drainage Strategy

As stated above there has been significant engagement between AECOM, SDCC, CIL and their consultant engineers, DBFL Ltd, during the development of this scheme, to discuss the challenges and solutions required to service the Clonburris Phase 01 site and finalise a connect into the foul and surface water networks, withing this Link Road. The existing traveller accommodation SW network cannot be drained to the Link Road surface water sewer due to level constraints. Therefore, it is currently proposed to connect the surface water infrastructure within the existing accommodation into the proposed foul water drainage network.

AECOM propose to provide a dedicated surface water drainage system throughout the entirety of the proposed development, prior to discharging the runoff downstream, to the west, as set out in the Surface Water Management Plan (SWMP). The regional pond is proposed approx. 300 m downstream of the site, to attenuate the sub-catchment shown in red in Figure 2.2. This will be delivered as part of the CIL infrastructure works for the full SDZ.

The portion of the site outlined in a blue hatch, in Figure 2.2, is zoned urban centre within the SDZ. Only a portion of this urban centre lies within the subject site. Urban centres are defined as high density areas and have been identified under the SWMP as areas which should be attenuated separately.

Given that the land use proposed within this blue hatch is consistent with the use and density to the rest of the Clonburris Phase 01 lands, AECOM sought clarification in the Stage 1B report as to whether this zoning will be changed or modified by the local authority, to reflect the current scheme and queried if the regional pond could attenuate this extra area of runoff – AECOM were advised that the zoning will not be changed based on the requirements of the SDZ SWMP.

It is therefore proposed to provide a detention basin for this urban centre within the 'community green' in the centre of the site. This size and location have been coordinated with the landscape architect. Further engagement with AECOM Civil, Landscape and Ecology sections and the corresponding SDCC departments will take place during the detailed design, to ensure all concerns and issues can be fully addressed prior to tender.

Following the Stage 1B report, AECOM received confirmation that the majority of the site, (not identified as urban centre zoning), can be attenuated in the regional pond, 'ATN-02', as set out in the SWMP for the SDZ and that no flow controls are required to restrict flow from the subject site.

This regional pond has been designed by CIL/DBFL using an assumed overall impermeable area of 52.6% for the entire sub-catchment. Refer to Table 2.3 for the site's runoff factor (64%).

It should be noted that this area excludes the Public Open Space (1.5 ha) adjacent to the Kilmahuddrick Stream, as runoff will enter the stream rather than the proposed network. Similarly, the existing accommodation has been excluded. It is proposed to discharge runoff from this existing development to the foul sewer in the link road, due to levels constraints, refer to Section 2.10 for further detail.

The Link Road, which is under a separate planning application, is also included in these areas. Refer to AECOM drawing no. PR-383676-ACM-00-00-DR-CE-10-0520. Refer to CLON-ACM-00-XX-DR-C-10-0550 for flood exceedance routes

2.6 SuDS Strategy

SuDS measures have been discussed with with SDCC Drainage Department and AECOM's Landscape department, during the development of this Part 8 submission. As part of these discussions AECOM have been advised that SDCC will require the use of a treatment train within the development to all impermeable surfaces.

The SuDS features that are considered suitable based on the current site layout are as follows:

- Green Roof for the apartments proposed
- Permeable Paving
- Bio-Retention / Rain Gardens / Tree Pits
- Swales
- Oil Separators

Please refer to AECOM landscape architect's pack for more details on these features. It should be noted that standard details will be further refined at detailed design stage and approval obtained in writing from South Dublin County Council.

Further engagement/interaction will take place between AECOM Civil, Landscape and Ecology sections and the corresponding SDCC departments, during the development of the detailed design, to ensure all concerns and issues can be fully addressed prior to tender.

It is currently proposed to treat runoff from the different surface types as per Table 2.1 below.

Table 2.1: SuDS Measures Proposed by Surface Type

Surface Type	Proposed SuDS Measures
Roofs	Green Roofs, Bio-Retention, *Oil Separator, *Regional Pond
Roads	Permeable Paving, Swales, Bio-retention, *Oil Separator, *Regional Pond
Hardstanding Paths	Bio-Retention, Permeable Paving, Swales, Adjacent Landscaping, *Oil Separator, *Regional Pond

* Provided at outfall of sub-catchment, not on Clonburris Phase 01 site.

2.7 Interception & Treatment Volumes

Notwithstanding the SDCC requirement to use a treatment train for runoff from all surfaces, there is also a requirement to provide a minimum volume of treatment storage equalling 15 mm of runoff over 80% of all impermeable surfaces, as per GDSDS Table 6.3 Sub-Criterion 1.2. This criterion must be applied if criterion 1.1 cannot be satisfied, i.e., the first 5 mm cannot be intercepted.

The interception of runoff through large amounts of infiltration will not be proposed, given the pyrite contained in bedrock, revealed from initial site investigations. Contact between water and the pyrite has potential to lead to heave, potentially causing structural issues. Interception will still be available via evapotranspiration from the proposed SuDS measures.

Based on the initial results of the site investigation, undertaken in November 2021, it is likely that poor infiltration rates will be confirmed on site, given the predominantly clay subsoils. AECOM will further investigate whether SuDS measures should be lined with an impermeable liner, based on the potential risk to the road build-up and buildings, following receipt of site investigation and liaison with the Geotechnical & Structural Engineer.

Refer to the interception & treatment requirements below in Table 2.2. The full table provision is available in Appendix C. The interception criterion of the GDSDS has not been satisfied, and therefore GDSDS treatment requirements have been satisfied.

It is noted that raingardens will receive footpath runoff onto its vegetated surface, thereby offering greater interception than the value shown, which is the raingarden area multiplied by the evapotranspiration rate. In effect, the area applied could be greater.

Table 2.2: Interception & Treatment Requirements vs Provision

Overall Site - Interception & Treatment Provision				
Contributing Area (m^2) *	Interception		Treatment	
	Required (m^3) *	Provided (m^3)	Required (m^3) **	Provided (m^3)
49800	199.2	39.7	597.6	869.4

* Excludes; existing accommodation (0.8 ha), gardens and public open spaces
** Based on the first 5mm of rainfall, over 80% of the impermeable area.
*** Based on the first 15mm of rainfall. over 80% of the impermeable area.

2.8 Proposed Surface Water Network

As previously discussed, a portion of the site falls within lands zoned as urban centre, which are to be attenuated separately. Refer to the Figure 2.3 below.

The high-level sketch above in Figure 2.3, appears to exclude the footpath as well as the road in the urban centre, corresponding to an area of approx. 5000 m^2 as shown in green in Figure 2.4.

An equivalent area (shown in yellow) has been modelled. This area is used rather than providing a separate network solely for the urban centre zone (green). The roads and footpaths are included within the equivalent (yellow) area as 2 separate networks for roofs and road/footpaths would be unnecessary.

The proposed outflow rate from the 'urban centre' attenuation is 2 l/s, as agreed with SDCC.

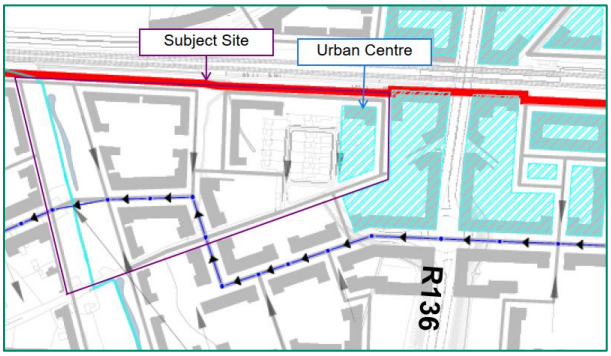


Figure 2.3: SWMP Urban Centre Zone in Blue Hatch

Figure 2.4: Urban Centre Area without Road & Footpath (Blue) & Modelled Area (Yellow)

A drainage model was developed using Innovyze MicroDrainage, using the rainfall criteria as set out in the SWMP, which is summarised below.

Site area = 11 ha. 8 ha contributes runoff to the network
SAAR = 772.83 (Met Éireann)
M5-60 = 16.9 mm (Met Éireann)
Ratio r = 0.276 (Met Éireann)
Soil Value = 0.45 (to be confirmed from SI Interpretive report)
Climate Change = 20% allowance
Qbar = Qbar of 3.1 l/s/ha used for SDZ. Qbar of 2 l/s used for outflow from urban centre zone, as agreed with SDCC

Table 2.3: Effective Runoff Areas

Structure Type	Area (ha)	Runoff Coefficients*	Effective Contributing Area (ha)
Impermeable Roofs	1.48	100%	1.48
Green Roofs (if any)	0.15	80%	0.12
Roads	1.52	100%	1.52
Pathways	1.50	100%	1.50
Permeable Paving	0.33	55%	0.18
Softscape, Lawns, Raingardens, Swales	3.02	10%	0.30

Total	8.00	Total Runoff Coefficient:	5.10
			64%

Note:
- This runoff coefficient does not include Public Open Space, which is not envisioned to enter the proposed network, and will instead infiltrate to ground or runoff to the Kilmahuddrick Stream.
- The Link Road is included in these figures but is under a separate application.
- The existing accommodation has been omitted from this assessment as it is an existing development and is proposed to discharge to the foul network due to levels constraints, to be discussed with Irish Water.

As discussed further below in Section 2.9, to reduce fill requirements, some pipes are proposed to be laid at flatter gradients resulting in self-cleansing velocities less than 1 m/s, however the number of pipes this occurs in has been limited in so far as possible.

Refer to AECOM drawing no. PR3838676-ACM-00-00-DR-CE-10-0501 - Proposed Drainage Layout and Appendix D for model results & longsections. Velocities less than 1 m/s are noted on these documents.

2.9 Discussions with SDCC Regarding Surface Water Network & Fill

The proposed Link Road surface water sewer is relatively high in comparison to the surrounding lands, as it is constrained by the outfall to the Kilmahuddrick Stream. As a result, in order to connect the development to the Link Road sewer, the lands for the housing units will need to be raised.

Discussions with SDCC drainage and architecture departments took place between January and February 2022 to assess the site's surface water options in order to minimise the required fill throughout the site, particularly at the north west portion of the site. Options explored include;

1. Discharging a portion of the site to the Kilmahuddrick Stream directly adjacent to the site,
2. Laying a separate sewer parallel to the rail track, to accommodate the lower lands to the north of the Link Road
3. Lower the connection to the proposed Link Road sewer

The results of the options above are as follows;

1. Discharging to the stream within the site did not result in the fill being reduced to warrant a separate outfall and potential loss of usable open space associated with the development
2. The Kilmahuddrick Stream within Clonburris Phase 01 would be required to be culverted in order to cross the stream. The levels associated with the outfall coupled with the potential challenge of dealing with the steam would not result in a reduction in fill required.
3. Various options of connection heights to the 1500 mm diameter Link Road sewer were explored.

Option 3 was explored and resulted in the optimal solution which addressed both the potential flood risk and fill volumes. This option proposed a connection from the site at 375 mm below the soffit of the 1500mm diameter sewer (within the Link Road). This would ensure that the invert level of the connecting sewer is above the regional pond top water level (TWL) of 55.724. Refer to sketch of TWL of pond below. Refer to. (Refer to DBFL Drawing No 190113-DBFL-0500-SP-DR-C-1002 for regional pond details.

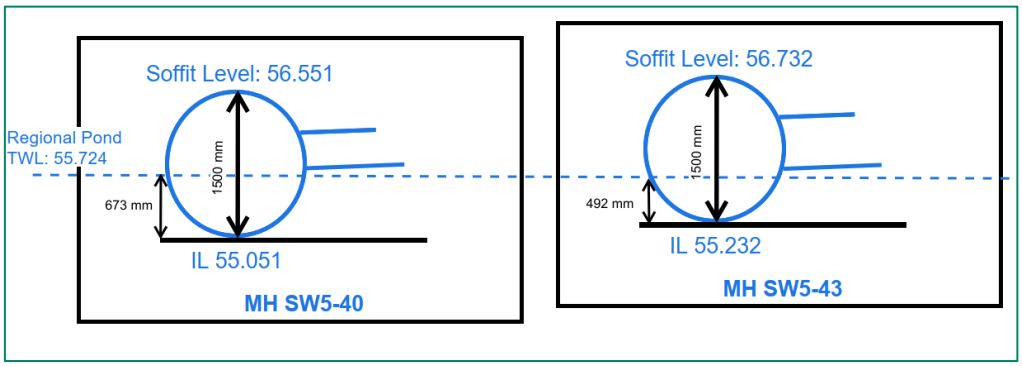


Figure 2.5: Connections to Trunk Sewer above Regional Pond TWL

It is also proposed to relax the self-cleansing velocities to reduce gradients at the western portion of the site to assist in reducing the overall fill requirements.

The GDSDS states a 1 m/s self-cleansing velocity. AECOM propose to lower the self-cleansing velocity to 0.8 m/s to reduce fill volumes. Previous guidance documents such as EN 752-4:1997 suggests a self-cleansing velocity of 0.7 m/s is satisfactory – see extract below.

> For small diameter drains and sewers (less than DN 300) self-cleansing can generally be achieved by ensuring either that a velocity of at least 0,7 m/s occurs daily, or that a gradient of at least 1:DN is specified. In the case of drains, steeper gradients may be required by the relevant authority.

AECOM and SDCC have undertaken further discussions on this issue in March 2022, since the Pre-Part 8 submission and AECOM have attempted to ensure all pipelines have a self-cleaning velocity above 0.8 l/s and pipelines greater than 375mm diameter have self-cleansing velocity above 1 l/s.

Trapped gullies and catchpit manholes will be provided to reduce silt entering the network and building up in these flat pipes.

The FFL of the units are also proposed to be in excess of 500mm above the top of water level of the regional pond, i.e. 55.724 + 0.5 = 56.224

The drainage model does not result in any manholes flooding or at risk of flooding at a threshold of 250 mm.

2.10 Existing Traveller Accommodation

Given the low-lying nature of the existing traveller accommodation to be retained, and the relatively high surface water sewer proposed within the Link Road, it is not possible to discharge by gravity to the existing surface water network, from the traveller accommodation, into the proposed surface water network along the Link Road.

AECOM are therefore currently seeking approval from Irish Water to connect the exiting surface water network, within the traveller accommodation, to the foul trunk sewer along the Link Road.

It is acknowledged that the amount of runoff must be restricted as much as possible, and it is therefore proposed to retrofit the traveller accommodation with a filter drain at the road edge and other SuDS measures such as raingardens and permeable paving where possible, to reduce and restrict the volume of runoff entering the foul network. If this is not acceptable to Irish Water, a hybrid solution including the provision of a pumped system to connect into the Link Road may be necessary. AECOM will continue to engage with Irish Water and South Dublin City Council to find the most effective solution for all parties.

AECOM are also proposing a series of gullies to minimise the amount of runoff entering the low-lying existing accommodation from the proposed surrounding development.

Refer to AECOM drawing no. PR3838676-ACM-00-00-DR-CE-10-0501 - Proposed Drainage Layout.

3. Foul Water Drainage

3.1 Existing Foul Water Drainage

There is an existing traveller accommodation halting site which utilises the Kisogue wastewater pumping station (WWPS) and a WWPS at Lynch's Lane which pumps the wastewater, via a rising main to Griffeen Ave as indicated in Figure 3.1. Refer to Appendix B for details of records.

Figure 3.1: Existing Foul Water Records (Irish Water)

3.2 Proposed Foul Water Drainage

SDCC submitted a Pre-Connection Enquiry form to Irish Water in September 2020 for the subject site. This proposed the utilisation of the existing rising main on Lynch's Lane in conjunction with providing a new pumping station, on the site of Pumping Station No. 2 (as identified within the overall SDZ). This temporary solution was proposed until the permanent infrastructure works has been fully commissioned by Clonburris Infrastructure Limited (CIL). This option was rejected at a meeting with Irish Water, AECOM and SDCC on the 12th April 2021

In March 2021, the Clonburris Water and Wastewater Design Report, Rev E, which was prepared by DBFL Consulting Engineers on behalf of the CIL for the full Strategic Development Zone (SDZ) at Clonburris was approved by SDCC and Irish Water.

As part this report DBFL had submitted a Pre-Connection Enquiry form to Irish Water for the full Strategic Development Zone (SDZ) of 11,101 residential units in June 2019. A Confirmation of Feasibility was received from Irish Water in October 2019 which stated that all infrastructure in the SDZ should be designed and installed in accordance with;

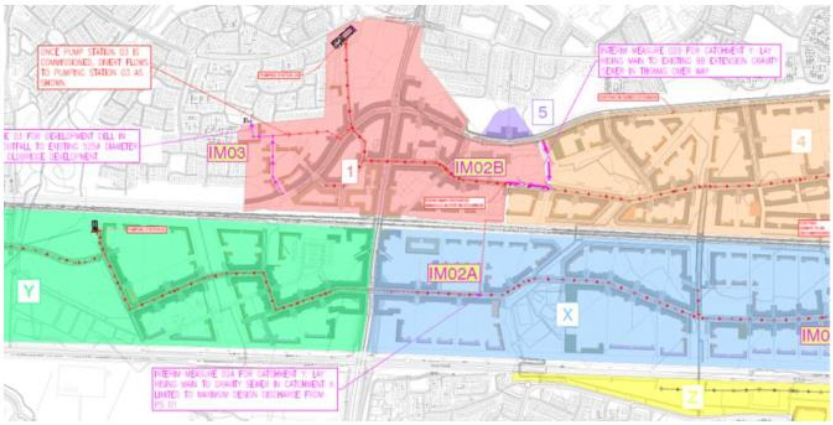
- the Clonburris Masterplan (on-going project) approved by Irish Water.
- the Development phasing and connection timelines of each phase agreed with Irish Water.
- the Irish Water Codes of Practice and Standard Details.

As stated above Irish Water agreed in writing the overall Clonburris Masterplan, submitted by the CIL, in April 2021.

Under the recently granted planning application obtained by the CIL, under Plan. Reg. Ref. SDZ20A/0021, in August 2021, the Interim Measure IM02A for disposal of wastewater from catchment Y was approved by Irish Water.

A site-specific Certificate of Feasibility (CoF) was issued by Irish Water on 25th November 2021 (refer to Appendix E), confirming Interim Solution IM02A is acceptable for the Clonburris Phase 01 site.

This site specific CoF sates the following:

Wastewater Connection	The Development is a part of Clonburris Strategic Development Zone (SDZ) – Catchment Y. In order to facilitate the proposed Development, all relevant core wastewater infrastructure within the Zone have to be completed, connected to the Irish Water network and in operation. All required works will need to be in accordance with Clonburris SDZ Master Plan including Interim Measures. As per the Master Plan, the Development may connect via proposed SDZ Pumping Station 02. The rising main from the Pumping Station may connect via IM02A route as an interim measure. The connection is subject to delivery of the trunk sewer in Catchment X and the delivery of the proposed SDZ Pumping Station 01 and 02. The core infrastructure will be delivered by Clonburris Infrastructure Limited except Pumping Station 01 which will be delivered by Irish Water. 

AECOM are therefore proposing to connect the development by gravity, into the main gravity trunk foul line along the Link Road which will be serviced by Pump Station 02.

The existing foul pumping station at the traveller accommodation and associated rising main along Lynch's lane will be decommissioned and it is proposed to connect these units into the foul network along the Link Road. The CoF issued from Irish Water caters for these residential units.

Refer to AECOM drawing no. PR3838676-ACM-00-00-DR-CE-10-0501 for the proposed drainage layout and Appendix F for the model results and longsections.

4. Watermain Infrastructure

4.1 Existing Watermain Infrastructure

There is an existing 110 mm PVC Watermain servicing the halting site as indicated on the records below obtained from Irish Water.

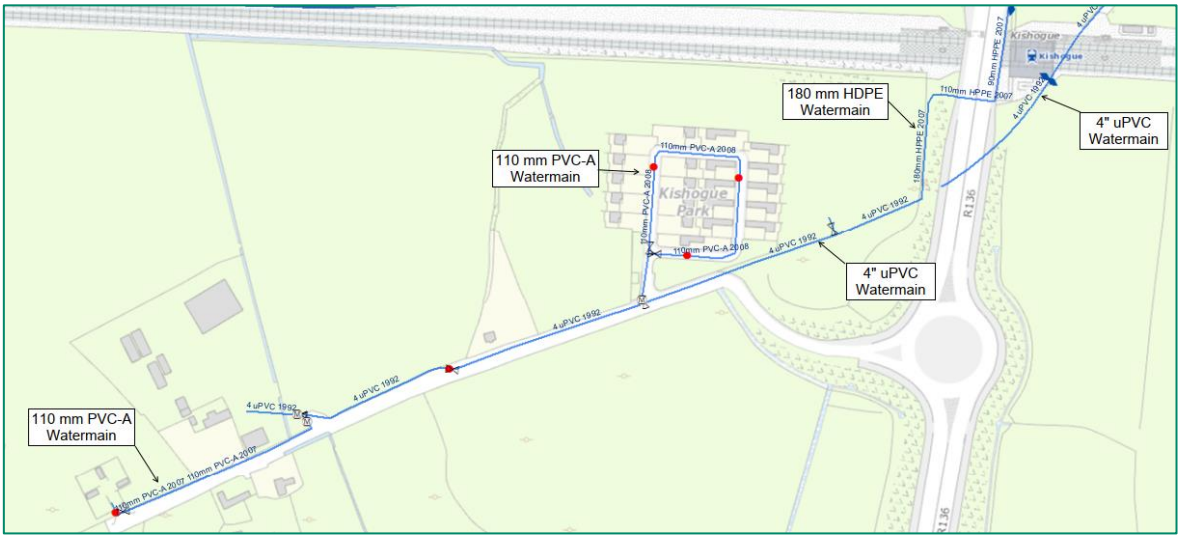


Figure 4.1: Existing Irish Water Watermain Records (Irish Water).

4.2 Proposed Watermain Infrastructure

DBFL Link Road drawings 190113-DBFL-0500-SP-DR-C-1054 & 1055 Revision P02 show a trunk 355 mm watermain within the Link Road, which supplies a 160 mm Watermain within the Link Road cycle lane.

The proposed housing development will be connected to the temporary dead ends on this 160 mm watermain. The dead end hydrant will be replaced with a water meter upon connection.

A Pre-Connection Enquiry form was submitted to Irish Water in September 2020 by SDCC. The site-specific Certificate of Feasibility was issued on 25th November 2021, and provided for a series out upgrades;

> *Connection main – Approx. 85m of new 150mm ID pipe mains to be laid to connect the site developments (see yellow sections below) to the existing 180mm HPPE main. As shown below (see red dashed-line in figure). Connection mains are to have a bulk meter on it which will be linked up to telemetry online.*
>
> *Upgrade main – Approx. 285m of new 150mm ID pipe mains to be laid to work in parallel with the existing 4" uPVC and connect to the existing 180mm HPPE main and the 400mm DI. As shown below (see green line in figure).*

Figure 4.2: Water Upgrades from IW CoF issued November 2021

However, it is envisaged that the truck main as provided for in DBFL Link Road drawings will be in place and the development will connect to the temporary dead ends designed into this infrastructure.

Further engagement will be undertaken with Irish Water and CIL on this issue as the design develops.

5. Conclusion

AECOM have developed their design in conjunction with the wider design team, SDCC and the CIL. The recently granted planning application, Plan. Reg. Ref. SDZ20A/0021, provided a Link Road, foul and surface water drainage networks, including regional ponds to allow the cohesive development of the Clonburris SDZ.

The Clonburris Phase 01 lands have taken account of the requirements of the SDZ and this planning application to develop this Part 8 submission.

Further engagement/interaction will take place between AECOM Civil, Landscape and Ecology sections and the corresponding SDCC departments, during the development of the detailed design, to ensure any concerns and issues can be fully addressed prior to tender.

Appendix A – Site Investigation Documents received to date

IGSL Limited

AECOM

Clonburris SDZ Phase 1 Additional Ground Investigation (AGI)

Factual Ground Investigation Report

Report No. 23784

April 2022

Report

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DOCUMENT ISSUE REGISTER

Distribution	Report Status	Revision	Date of Issue	Author
AECOM	Factual Report	0	12/04/2022	D. Green BA BAI CEng MIEI FGS

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FOREWORD

The following conditions and notes on the geotechnical site investigation procedures should be read in conjunction with this report.

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 5930:2015 and BS 1377 (Parts 1 to 9) and the following European Norms:

- EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- EN ISO 14688-1:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- EN ISO 14688-2:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles
- EN ISO 14689-1:2018 Geotechnical Investigation and Testing - Identification & Classification of Rock, Part 1: Identification & Description

Reporting

This report has been prepared for AECOM and the information should not be used without prior written permission of either party. IGSL Ltd accepts no responsibility or liability for this document being used other than for the purposes for which it was intended. 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.

Boring Procedures

Unless otherwise stated, 'shell and auger' or cable percussive boring technique has been employed as defined by Section 6.3 of IS EN ISO 22475-1:2006. The boring operations, sampling and in-situ testing complies with the recommendations of IS EN 1997-2:2007 and BS 1377:1990 and EN ISO 22476-3:2005+A1:2011. The shell and auger boring technique allows for continuous sampling in clay and silt above the water table and sand and gravel below the water table (Table 2 of IS EN ISO 22475-1:2006).

It is highlighted that some disturbance and variations is unavoidable in particular ground (e.g. blowing sands, gravel / cobble dominant glacial deposits etc). Attention is drawn to this condition, whenever it is suspected. Where cobbles and boulders are recorded, no conclusion should be drawn concerning the size, presence, lithological nature, or numbers per unit volume of ground.

Rotary Drilling Procedures
Rotary drilling methods are used to recover very heavily over-consolidated glacial till and bedrock samples in line with Section 3.5 of IS EN 1997-2:2007 and IS EN ISO 22475-1. Open hole drilling methods (odex or symmetrix) are utilized to advance the drillholes through granular dominant superficial deposits, with coring in hard ('cemented') fine grained or cohesive glacial deposits and bedrock.

In-Situ Testing
Standard penetration tests are conducted by IGSL 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+A1:2011 and the Energy Ratio (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 measured 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+A1:2011).

Groundwater
The depth of entry of any influx of groundwater is recorded during the course of boring or drilling 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.

Soil Sampling
Three categories of sampling methods are outlined in EN ISO 22475-1:2006. The categories are referenced A, B and C for any given ground conditions and are shown in Tables 1 and 2 of EN ISO 22475-1:2006. Reference should be made to EN 1997-2:2007 for guidelines on sample class and quality for strength and compressibility testing. Samples of quality classes 1 or 2 can only be obtained by using Category A sampling methods.

Where appropriate Class 1 thin wall undisturbed tube samples (UT100) are obtained in fine grained soils and strictly meet the requirements of EN 1997-2:2007 and EN ISO 22475-1:2006. Soil samples for laboratory tests are divided into five classes with respect to the soil properties that are assumed to remain unchanged during sampling, handling transport and storage. The minimum sample quality required for testing purposes to Eurocode 7 compatibility (EN 1997-2:2007) is shown in Table A.

Table A – Details of Sample Quality Requirements

EN 1997 Clause	Test	Minimum Sample Quality Class
5.5.3	Water Content	3
5.5.4	Bulk Density	2
5.5.5	Particle Density	N/S
5.5.6	Particle Size Analysis	N/S
5.5.7	Consistency Limits	4
5.5.8	Density Index	N/S
5.5.9	Soil Dispersivity	N/S
5.5.10	Frost Susceptibility	N/S
5.6.2	Organic Content	4
5.6.3	Carbonate Content	3
5.6.4	Sulphate Content	3
5.6.5	pH	3
5.6.6	Chloride Content	3
5.7	Strength Index	1
5.8	Strength Tests	1
5.9	Compressibility Tests	1
5.10	Compaction Tests	N/S
5.11	Permeability	2

N/S – not stated. Presume a representative sample of appropriate size.

Samples recovered from trial pits or trenches meet the requirements of IS EN ISO 22475-1. It is highlighted that unforeseen circumstances such as variations in geological strata may lead to lower quality sample classes being obtained.

Engineering Logging

Soil and rock identification is based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2018 and IS EN ISO 14689-1:2018. Rock weathering classification conforms to IS EN ISO 14689-1:2018 while discontinuities (bedding planes, joints, cleavages, faults etc) are classified in accordance with 4.3.3 of IS EN ISO 14689-1:2018. Rock mechanical indices (TCR, SCR, RQD) are defined in accordance with IS EN ISO 22475-1:2006.

Retention of Samples

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

1.0 Introduction and Objectives

South Dublin County Council (SDCC) propose to develop lands at Clonburris, South County Dublin.

The site location is as shown on Figure 1 with the approximate site outline indicated in red.

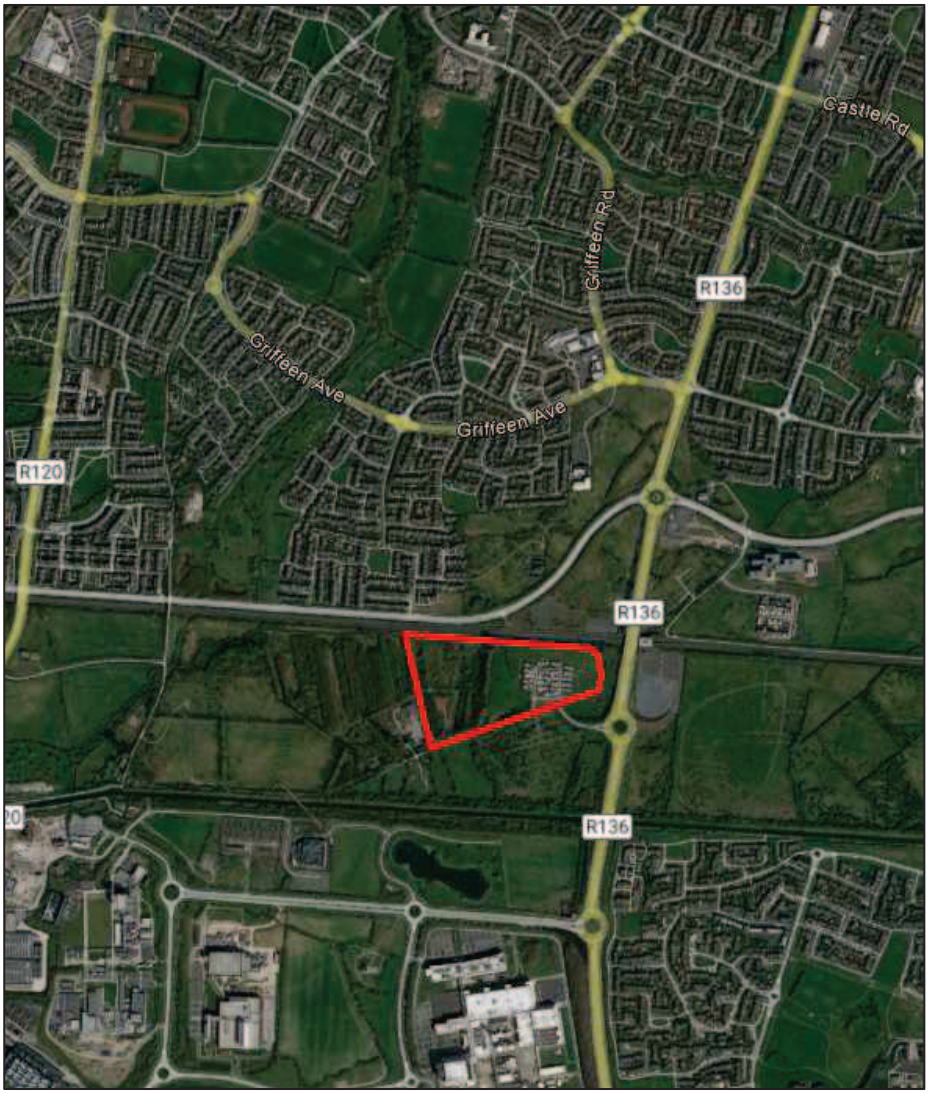


Figure 1 – Site Location (Base Mapping – Google Earth Professional)

IGSL Limited were appointed by AECOM to conduct a ground investigation at the site. The objectives of the investigation were to ascertain the ground and groundwater conditions, and to produce a report which will assist in the geotechnical design of the new development.

This report presents the findings of the investigation including the exploratory hole records and the results of laboratory testing.

2.0 Scope of Works

The programme of exploratory works included the following:

- 56 no. percussive boreholes
- 15 no. rotary coreholes
- 3 no. mechanically excavated trial pits
- 3 no. infiltration tests (in trial pits)
- 7 no. plate bearing tests
- 4 no. dynamic cone penetrometer (TRL DCP) tests
- A programme of geotechnical, chemical and environmental laboratory testing

The exploratory hole locations are shown on the as-surveyed aerial plan in Appendix 10 of this report.

2.1 Terrier Percussive Boreholes

Percussive boreholes were undertaken using the tracked Terrier rig and in-situ Standard Penetration Tests (SPT) were performed at 1 metre intervals.

The boreholes were advanced by driving a steel sampling tube under constant percussive effort. The soils enter the tube within a protective plastic liner, which is withdrawn after every metre of progress. The liners are then placed in wooden channel boxes and transported to the IGSL offices where they are logged and sub-sampled as required.

For this project, environmental sub-samples were also extracted and placed in appropriate containers (amber glass jars and vials).

The percussive borehole records are presented in Appendix 1 of this report.

2.2 Rotary Coreholes

Rotary coreholes RC01 to RC15 were drilled using a Beretta T44 tracked coring rig in order to investigate for the presence of bedrock.

Symmetrix open hole techniques were used to advance through the overburden deposits, reverting to rotary coring in bedrock. It is noted that Symmetrix drilling produces highly pulverised drill returns and therefore, soil descriptions based on these returns are very approximate.

Standard Penetration Tests (SPTs) were undertaken within overburden to obtain an indication of soil strength.

Rotary coring of bedrock was carried out using an air/mist flush to maximize recovery. Cores of 78 mm diameter were recovered and placed securely in wooden storage boxes. The recovered core was inspected by a qualified engineering geologist and logged in detail at IGSL's laboratory.

Standpipes were installed in coreholes RC01, 07, 09, 11 and 13 to permit long term groundwater monitoring.

All rock cores were labelled and photographed for inclusion in the report. Photographs are presented digitally for ease of browsing and to permit close examination at high resolution. The corehole records and photographs are presented in Appendix 2 of this report.

2.3 Trial Pits

Trial pitting was performed at three locations (SA01 to SA03) using a tracked excavator. The trial pits were logged and sampled by an IGSL geotechnical engineer in accordance with BS 5930 (2015+A1:2020).

Pit sidewalls were assessed in terms of their short-term stability and any instances of groundwater ingress were recorded.

Infiltration tests (Section 2.4) were also undertaken in each trial pit.

The trial pits were backfilled with the as-dug arisings and reinstated to the satisfaction of IGSL's site geotechnical engineer. The trial pit logs in Appendix 3 include descriptions of the soils encountered, groundwater conditions and stability of the pit sidewalls.

2.4 Infiltration Tests

Infiltration tests were performed in each of the three trial pits (SA01 to SA03) to assess the suitability of the sub-soils for the dispersion of run-off water through a soakaway system. Testing was performed in accordance with BRE Digest 365 'Soakaway Design'.

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. This procedure is repeated to ensure saturation of the sub-soils. 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. Designs are based on the slowest infiltration rate, which is generally calculated from the final cycle.

The infiltration test records are included in Appendix 4.

2.5 Plate Bearing Tests

Plate bearing tests were performed in seven locations (PT01 to PT07) to measure the moduli of subgrade reaction and equivalent CBR values of the sub-soils. A 450 mm diameter plate was used, and tests were performed at a depth of 0.4 metres below existing ground level (m BGL).

Tests were performed in accordance with BS 1377 Part 9: 1990. "In-situ Tests". The incremental loading test (4.1.6.4.2) was used. The load was applied in five approximately equal increments. To measure recovery the load was removed in three increments. A second phase of loading and unloading was performed to assess the benefits of further compaction. The settlement under each increment was measured against time until movement had effectively ceased and the results are presented as graphs of applied pressure against settlement.

Calculation of Modulus of Sub-grade Reaction (k) and CBR values are in accordance with NRA HD25-26/10 Volume7: Pavement Design and Maintenance. K_{762} is defined as the applied pressure divided by the displacement (1.25 mm) using a plate 762 mm in diameter. For other plate sizes, the Modulus of Sub-grade Reaction is determined using the appropriate conversion factor as shown on Figure 3.5 of HD25-26/1.

The plate bearing test records are presented in Appendix 5.

2.6 TRL Dynamic Cone Penetrometer

DCP testing was undertaken in four locations (CBR01 to CBR04) in order to estimate the in-situ CBR values for the subgrade soils. Tests commenced at ground surface level.

The Dynamic Cone Penetrometer (DCP) apparatus was designed by TRL for the rapid in-situ measurement of the structural properties of existing road pavements. However, the apparatus is also widely used to obtain measurements of the CBR values of the sub-grade, particularly in granular soils which are too coarse for laboratory testing where the maximum particle size is limited to 20mm. The DCP-CBR relationship stipulated in TRRL Road Note 8 is based on publications by Kleyn and Van Heerden.

The results of each test are presented in terms of the DCP blow-count (mm/blow) against depth of penetration and the depth range for calculation purposes is generally related to a specific soil layer.

The DCP test records are included in Appendix 6. It is noted that the most onerous (weakest) depth range has generally been selected for the purpose of CBR calculation. However, alternative depth ranges can be selected and the equivalent CBR calculated using the equation provided on the record.

2.7 As-Built Survey

On completion of fieldworks, the location (x,y) and elevation (z) of each exploratory location was determined by detailed survey using GPS Realtime Kinetic survey instrument.

The National Grid survey co-ordinates and ground levels related to Malin Head Datum are presented on the exploratory hole records and these were used to plot the as-built locations on the Site Plan in Appendix 10 of this report.

3.0 Laboratory Testing

Laboratory test results are segregated and presented as follows:

- Appendix 7 – Geotechnical Laboratory Testing
- Appendix 8 – Rock Strength Testing
- Appendix 9 – Chemical and Environmental Testing - undertaken by Nicholls Colton (Appendix 9.1) and Eurofins Chemtest (Appendix 9.2)

Geotechnical testing of soils comprised:

- Moisture Content
- Atterberg Limits (Plasticity Index)
- Particle Size Distribution (PSD)

Rock strength testing comprised:

- Point Load Strength Index (Axial and Diametral)

Chemical and environmental tests included:

Chemical

- BRE Sulphate Test Suite (undertaken by Eurofins Chemtest on soils)
- Water Soluble Sulphate and pH (undertaken by Nicholls Colton on rock core samples)
- Sulphur / Sulphate "Test Suite A" with EN 1744 determinants (undertaken by Nicholls Colton on rock cores)
- Sulphur / Sulphate "Test Suite B" with TRL447 determinants (undertaken by Nicholls Colton on obstructing material recovered from the base of percussive boreholes)

Environmental

- AECOM Soils Test Suite (determinands as per specification)
- AECOM Soil Recovery Test Suite (determinands as per specification)
- RILTA WAC Suite

4.0 References

1. BS 5930:2015 Code of Practice for Site Investigations; British Standards Institute
2. Manual of Contract Documents for Highway Works, Volume 5, Section 3, Ground Investigation, Part 4: Specification
3. BRE Special Digest 1: 2005 – Concrete in aggressive ground
4. EN 1997-3; Eurocode 7: Geotechnical Design – Part 3: Design assisted by field testing; 1997
5. BS1377; British Standard Methods of Test for Soils for Civil Engineering Purposes; British Standards Institute;1990.
6. BRE Digest 365, September 1991, British Research Establishment
7. Manual of Contract Documents for Road Works, Volume 1: Specification for Road Works (March 2007)
8. Manual of Soil Laboratory Testing, Volume 3; K.H. Head
9. ISRM – Suggested Methods for Determining Point Load Strength
10. ISRM – Suggested Methods for Determining the Uniaxial Compressive Strength and Deformability of Rock Materials
11. TRL Report 447- Sulfate specification for structural backfills
12. CIRIA C580
13. Specification for Roadworks Series 600 – Specification for Roadworks

Appendix 1

Percussive Borehole Records

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS01**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,029.40 E 732,724.14 N	**DATE DRILLED**	17/12/2021
GROUND LEVEL (mOD)	56.54	**DATE LOGGED**	17/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162370	B	0.00-0.40		
	Firm light brown sandy slightly gravelly CLAY.		0.20	56.34						
	Firm dark brown sandy gravelly to very gravelly CLAY with medium cobble content.		0.40	56.14		AA162371	B	0.40-1.50		
1.0									N = 14	
	Final Depth 1.50m		1.50	55.04					N = 41	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS02**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,065.62 E 732,714.70 N	**DATE DRILLED**	17/12/2021
GROUND LEVEL (mOD)	56.22	**DATE LOGGED**	17/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162352	B	0.00-1.10		
	Firm brown sandy gravelly CLAY.		0.30	55.92						
1.0									N = 11	
	Stiff dark grey sandy gravelly CLAY.		1.10	55.12		AA162353	B	1.10-1.50		
	Dense black slightly sandy GRAVEL.		1.50	54.72		AA162354	B	1.50-1.60	N = 46	
	Final Depth 1.60m		1.60	54.62						
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS03**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,110.09 E 732,713.18 N	**DATE DRILLED**	17/12/2021
GROUND LEVEL (mOD)	56.40	**DATE LOGGED**	17/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162154	B	0.00-1.40		
	Stiff greyish brown slightly sandy gravelly CLAY.		0.30	56.10					N = 17	
1.0	Stiff dark grey silty CLAY with occasional fine gravel		1.40	55.00		AA162155	B	1.40-2.00		
	Final Depth 1.80m		1.80	54.60					N = 36	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT Clonburris SDZ Phase 1 AGI

BOREHOLE NO. **WS04**
SHEET Sheet 1 of 1

CO-ORDINATES 703,996.53 E
732,682.00 N
GROUND LEVEL (mOD) 56.35

DATE DRILLED 17/12/2021
DATE LOGGED 17/12/2021

CLIENT SDCC
ENGINEER AECOM

DRILLED BY Colm Kavanagh
LOGGED BY C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	56.15		AA152192	B	0.00-0.50		
	Firm light brown slightly sandy slightly gravelly CLAY.		0.50	55.85						
1.0	Firm to stiff greyish brown slightly sandy gravelly CLAY.					AA152193	B	1.00-1.50	N = 22	
									N = 44	
	Final Depth 1.70m		1.70	54.65						
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS05**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,060.24 E 732,688.89 N	**DATE DRILLED**	17/12/2021
GROUND LEVEL (mOD)	56.22	**DATE LOGGED**	17/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm light brown sandy gravelly CLAY. Also contains glass and brick.					AA162152	B	0.00-0.80		
			0.80	55.42		AA162153	B	0.80-1.70		
1.0	Firm to stiff grey silty gravelly CLAY with occasional cobbles								N = 22	
2.0	Final Depth 2.00m		2.00	54.22					N = 40	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS06**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,099.52 E 732,687.16 N	**DATE DRILLED**	17/12/2021
GROUND LEVEL (mOD)	56.56	**DATE LOGGED**	17/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162161	B	0.00-1.00		
	Firm to stiff brown slightly sandy gravelly CLAY.		0.30	56.26						
1.0	Stiff dark grey SILT/CLAY with some gravel		1.00	55.56		AA162162	B	1.00-2.00	N = 24	
2.0	Final Depth 2.00m		2.00	54.56					N = 48	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS07**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,145.01 E 732,683.14 N	**DATE DRILLED**	17/12/2021
GROUND LEVEL (mOD)	57.03	**DATE LOGGED**	17/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm brown slightly sandy gravelly CLAY. Also contains mdf and brick.					AA162159	B	0.00-0.40		
			0.40	56.63						
	Firm to stiff grey silty gravelly CLAY.					AA162160	B	0.40-1.70		
1.0									N = 16	
	Stiff to very stiff grey gravelly CLAY		1.20	55.83						
2.0									N = 36	
	Final Depth 1.70m		2.00	55.03						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,038.09 E 732,674.76 N
GROUND LEVEL (mOD)	56.42
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS08**
SHEET	Sheet 1 of 1
DATE DRILLED	19/12/2021
DATE LOGGED	19/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	56.22		AA152194	B	0.00-1.10	N = 28	
	Firm brown slightly sandy gravelly CLAY.		0.80	55.62						
1.0	Stiff grey/brown gravelly CLAY		1.10	55.32						
	Final Depth 1.10m									
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS09**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,079.47 E 732,675.18 N	**DATE DRILLED**	19/12/2021
GROUND LEVEL (mOD)	56.52	**DATE LOGGED**	19/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	Firm stiff black sandy very gravelly CLAY		0.10	56.42		AA152395	B	0.00-0.40		
	MADE GROUND comprised of firm brown sandy gravelly CLAY. Also contains red brick.		0.40	56.12		AA152396	B	0.40-1.30		
	Stiff dark greyish brown sandy gravelly CLAY.								N = 28	
1.0	Very stiff black sandy very gravelly CLAY.		1.30	55.22		AA152397	B	1.30-2.00		
2.0	Final Depth 2.00m		2.00	54.52					N = 36	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,023.29 E 732,669.00 N
GROUND LEVEL (mOD)	56.41
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS10**
SHEET	Sheet 1 of 1
DATE DRILLED	17/12/2021
DATE LOGGED	17/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA152400	B	0.00-1.30		
	Firm brown sandy gravelly CLAY.		0.30	56.11						
1.0									N = 10	
	Stiff dark greyish black sandy very gravelly CLAY.		1.30	55.11		AA162351	B	1.30-1.80		
	Final Depth 1.80m		1.80	54.61					N = 22	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,114.64 E 732,669.19 N
GROUND LEVEL (mOD)	56.62
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS11**
SHEET	Sheet 1 of 1
DATE DRILLED	16/12/2021
DATE LOGGED	16/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162358	B	0.00-1.70		
	Firm to stiff greyish brown sandy gravelly CLAY.		0.20	56.42						
1.0									N = 18	
	Stiff black sandy very gravelly CLAY.		1.70	54.92		AA162359	B	1.70-2.00		
2.0	Final Depth 2.00m		2.00	54.62					N = 48	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,136.36 E 732,659.56 N
GROUND LEVEL (mOD)	56.66
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS12**
SHEET	Sheet 1 of 1
DATE DRILLED	21/12/2021
DATE LOGGED	21/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA152398	B	0.00-0.80		
	Firm brown very sandy gravelly CLAY.		0.30	56.36						
	Firm to stiff dark brownish grey sandy gravelly CLAY.		0.80	55.86		AA152399	B	0.80-2.00	N = 25	
1.0										
2.0	Final Depth 2.00m		2.00	54.66					N = 36	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT Clonburris SDZ Phase 1 AGI

BOREHOLE NO. **WS13**
SHEET Sheet 1 of 1

CO-ORDINATES 704,103.11 E
732,653.23 N
GROUND LEVEL (mOD) 56.83

DATE DRILLED 21/12/2021
DATE LOGGED 21/12/2021

CLIENT SDCC
ENGINEER AECOM

DRILLED BY Colm Kavanagh
LOGGED BY C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA152189	B	0.00-1.00		
	Firm greyish brown silty slightly sandy gravelly CLAY.		0.20	56.63						
1.0	Stiff grey silty slightly sandy gravelly CLAY.		1.00	55.83		AA152190	B	1.00-1.60	N = 20	
	Very stiff dark grey silty gravelly CLAY.		1.60	55.23		AA152191	B	1.60-2.00		
2.0	Final Depth 2.00m		2.00	54.83					N = 37	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,031.71 E 732,644.56 N
GROUND LEVEL (mOD)	56.56
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS14**
SHEET	Sheet 1 of 1
DATE DRILLED	21/12/2021
DATE LOGGED	21/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm brown slightly sandy gravelly CLAY. Also contains glass.					AA162163	B	0.00-0.90		
	Firm brown slightly sandy gravelly CLAY.		0.30	56.26						
1.0	Stiff to very stiff grey silty gravelly CLAY.		0.90	55.66		AA162164	B	0.90-2.00	N = 30	
2.0	Final Depth 2.00m		2.00	54.56					N = 35	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,138.17 E 732,638.15 N
GROUND LEVEL (mOD)	56.78
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS15**
SHEET	Sheet 1 of 1
DATE DRILLED	21/12/2021
DATE LOGGED	21/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	56.58		AA162366	B	0.00-0.60		
	Firm light brown sandy slightly gravelly CLAY.		0.60	56.18		AA162367	B	0.60-1.10		
1.0	Firm greyish brown sandy slightly gravelly CLAY.								N = 15	
	Stiff dark grey sandy very gravelly CLAY with medium cobble content.		1.10	55.68		AA162368	B	1.10-2.40		
2.0									N = 27	
	Final Depth 2.40m		2.40	54.38						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS16**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,008.26 E 732,630.44 N	**DATE DRILLED**	21/12/2021
GROUND LEVEL (mOD)	56.86	**DATE LOGGED**	21/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	Firm brown slightly sandy gravelly CLAY					AA152167	B	0.00-1.00		
			1.00	55.86						
1.0	Stiff brownish grey gravelly CLAY					AA152168	B	1.00-1.20	N = 23	
	Final Depth 1.20m		1.20	55.66						
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS17**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,091.55 E 732,621.58 N	**DATE DRILLED**	21/12/2021
GROUND LEVEL (mOD)	56.93	**DATE LOGGED**	21/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA152182	B	0.00-1.30		
	Firm dark brown slightly sandy gravelly CLAY.		0.30	56.63					N = 11	
1.0										
	Stiff to very stiff dark grey silty sandy CLAY.		1.30	55.63		AA152183	B	1.30-2.00		
2.0	Final Depth 2.00m		2.00	54.93					N = 49	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS18**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,137.58 E 732,623.38 N	**DATE DRILLED**	22/12/2021
GROUND LEVEL (mOD)	56.16	**DATE LOGGED**	22/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm brown slightly sandy gravelly CLAY. Also contains glass and tree branches.					AA162168	B	0.00-0.50		
	Stiff brown slightly sandy gravelly CLAY.		0.50	55.66		AA162169	B	0.50-1.30	N = 26	
1.0										
	Stiff to very stiff dark grey silty gravelly CLAY.		1.30	54.86		AA162170	B	1.30-2.00	N = 33	
2.0										
	Final Depth 2.50m		2.50	53.66						
3.0										
4.0										
5.0										

General Remarks

Installations

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS19**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,022.64 E 732,594.83 N	**DATE DRILLED**	22/12/2021
GROUND LEVEL (mOD)	57.25	**DATE LOGGED**	22/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of medium dense greyish brown sandy GRAVEL. Also contains brick.					AA152176	B	0.00-0.50		
	Firm dark brown slightly sandy CLAY.		0.50	56.75		AA152177	B	0.50-1.00		
1.0	Firm greyish brown slightly sandy slightly gravelly CLAY.		1.00	56.25		AA152178	B	1.00-1.60	N = 13	
	Stiff to very stiff grey gravelly CLAY with occasional cobbles		1.60	55.65		AA152179	B	1.60-3.00		
2.0									N = 16	
3.0	Final Depth 3.00m		3.00	54.25					N = 50/15mm	
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS20**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,064.15 E 732,606.89 N	**DATE DRILLED**	22/12/2021
GROUND LEVEL (mOD)	57.74	**DATE LOGGED**	22/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA152380	B	0.00-1.30		
	Firm becoming stiff greyish brown sandy gravelly CLAY.		0.30	57.44					N = 22	
1.0	Medium compact dark brownish black clayey very sandy GRAVEL (Possibly very gravelly Clay)		1.30	56.44		AA152381	B	1.30-2.00		
2.0	Final Depth 2.00m		2.00	55.74					N = 40	
3.0										
4.0										
5.0										

General Remarks

Installations

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS21**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,112.79 E 732,595.83 N	**DATE DRILLED**	22/12/2021
GROUND LEVEL (mOD)	57.34	**DATE LOGGED**	22/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA152378	B	0.00-1.50		
	Firm brown sandy gravelly CLAY with medium cobble content.		0.20	57.14					N = 13	
1.0										
	Stiff dark grey very sandy very gravelly CLAY with medium cobble content.		1.50	55.84		AA152379	B	1.50-2.40	N = 22	
2.0										
	Final Depth 2.40m		2.40	54.94						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,083.31 E 732,590.91 N
GROUND LEVEL (mOD)	57.45
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS22**
SHEET	Sheet 1 of 1
DATE DRILLED	16/12/2021
DATE LOGGED	16/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	57.25		AA162382	B	0.00-1.00		
	Firm brown sandy gravelly CLAY with low cobble content.									
1.0	Stiffdark brownish grey sandy very gravelly CLAY.		1.00	56.45		AA162383	B	1.00-1.30	N = 30	
	Final Depth 1.30m		1.30	56.15						
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS23**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,065.57 E 732,570.18 N	**DATE DRILLED**	20/12/2021
GROUND LEVEL (mOD)	57.66	**DATE LOGGED**	20/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of black slightly clayey sandy GRAVEL					AA162375	B	0.00-0.30		
	MADE GROUND comprised of firm to stiff brown sandy gravelly CLAY with low to medium cobble content. Also contains red brick.		0.30	57.36		AA162376	B	0.30-0.80		
	Stiff brownish grey sandy gravelly CLAY with low cobble content.		0.80	56.86		AA162377	B	0.80-1.00	N = 17	
1.0										
	Final Depth 1.80m		1.80	55.86					N = 43	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,098.71 E 732,562.55 N
GROUND LEVEL (mOD)	58.31
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS24**
SHEET	Sheet 1 of 1
DATE DRILLED	22/12/2021
DATE LOGGED	22/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm light brown very sandy slightly gravelly CLAY.					AA152382	B	0.00-0.50		
	MADE GROUND comprised of firm brown sandy gravelly CLAY with low cobble content.		0.50	57.81		AA152383	B	0.50-1.10		
1.0	Stiff dark brownish black silty slightly sandy gravelly CLAY.		1.10	57.21		AA152384	B	1.10-2.00	N = 10	
2.0	Final Depth 2.00m		2.00	56.31					N = 33	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS25**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,137.56 E 732,563.70 N	**DATE DRILLED**	22/12/2021
GROUND LEVEL (mOD)	57.29	**DATE LOGGED**	22/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm brown slightly sandy gravelly CLAY. Also contains brick and timber.					AA152184	B	0.00-1.20		
1.0									N = 6	
	Firm brown slightly sandy CLAY.		1.20	56.09		AA152185	B	1.20-1.70		
	Stiff grey silty sandy gravelly CLAY with occasional cobbles		1.70	55.59		AA152186	B	1.70-2.70		
2.0									N = 23	
	Final Depth 2.70m		2.70	54.59					N = 35	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,062.09 E 732,548.99 N
GROUND LEVEL (mOD)	58.03
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS26**
SHEET	Sheet 1 of 1
DATE DRILLED	22/12/2021
DATE LOGGED	22/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.10	57.93		AA152173	B	0.00-0.90		
	Firm dark brown slightly sandy CLAY.									
1.0	Firm grey silty slightly sandy slightly gravelly CLAY		0.90	57.13		AA152174	B	0.90-1.50	N = 14	
	Stiff to very stiff grey slightly sandy gravelly CLAY.		1.50	56.53		AA152175	B	1.50-2.50		
2.0									N = 22	
	Final Depth 2.50m		2.50	55.53						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,156.48 E 732,545.29 N
GROUND LEVEL (mOD)	57.69
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS27**
SHEET	Sheet 1 of 1
DATE DRILLED	13/12/2021
DATE LOGGED	13/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA132829	B	0.00-0.90		
	Soft o firm brown sandy gravelly CLAY.		0.30	57.39						
1.0	Firm to stiff brownish grey sandy very gravelly CLAY with medium cobble content.		0.90	56.79		AA132830	B	0.90-2.40	N = 23	
2.0									N = 20	
	Final Depth 2.40m		2.40	55.29						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS28**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,046.29 E 732,525.87 N	**DATE DRILLED**	20/12/2021
GROUND LEVEL (mOD)	58.09	**DATE LOGGED**	20/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	Medium compact to compact very clayey very sandy GRAVEL.					AA162355	B	0.00-0.30		
	Firm brown sandy gravelly CLAY with medium cobble content.		0.30	57.79		AA162356	B	0.30-1.40		
1.0									N = 10	
	Stiff black sandy very gravelly CLAY with low to medium cobble content.		1.40	56.69		AA162357	B	1.40-1.60		
	Final Depth 1.60m		1.60	56.49					N = 36	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS29**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,134.75 E 732,523.25 N	**DATE DRILLED**	20/12/2021
GROUND LEVEL (mOD)	61.87	**DATE LOGGED**	20/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.10	61.77		AA152164	B	0.00-0.70		
	Firm brown slightly sandy gravelly CLAY.									
	Stiff greyish brown silty slightly sandy gravelly CLAY.		0.70	61.17		AA152165	B	0.70-1.60	N = 21	
1.0										
	Stiff to very stiff grey silty gravelly CLAY.		1.60	60.27		AA152166	B	1.60-2.00		
2.0	Final Depth 2.00m		2.00	59.87					N = 34	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS30**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,064.67 E 732,506.35 N	**DATE DRILLED**	20/12/2021
GROUND LEVEL (mOD)	57.86	**DATE LOGGED**	20/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of compact dark greyish black slightly clayey sandy GRAVEL.		0.20	57.66		AA152392	B	0.00-0.20		
						AA152393	B	0.20-1.50		
	Firm to stiff brown sandy gravelly CLAY.									
1.0									N = 20	
	Stiff to very stiff black sandy very gravelly CLAY with occasional cobbles		1.50	56.36		AA152394	B	1.50-2.00		
2.0	Final Depth 2.00m		2.00	55.86					N = 49	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
BOREHOLE NO.	**WS31**
SHEET	Sheet 1 of 1
CO-ORDINATES	704,104.44 E 732,508.98 N
GROUND LEVEL (mOD)	63.58
DATE DRILLED	20/12/2021
DATE LOGGED	20/12/2021
CLIENT	SDCC
ENGINEER	AECOM
DRILLED BY	Colm Kavanagh
LOGGED BY	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.10	63.48		AA152180	B	0.00-1.50		
	Firm dark brown slightly sandy slightly gravelly CLAY.								N = 14	
1.0										
	Firm to stiff grey slightly sandy gravelly CLAY.		1.50	62.08		AA152181	B	1.50-2.00		
2.0	Final Depth 2.00m		2.00	61.58					N = 31	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,087.45 E 732,490.88 N
GROUND LEVEL (mOD)	59.04
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS32**
SHEET	Sheet 1 of 1
DATE DRILLED	21/12/2021
DATE LOGGED	21/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	58.84		AA152389	B	0.00-0.70		
	Firm brown sandy SILT/CLAY with occasional gravel		0.70	58.34		AA152390	B	0.70-1.00		
	Stiff brownish grey sandy very gravelly CLAY.		1.00	58.04					N = 41	
1.0	Final Depth 1.00m									
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS33**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,128.03 E 732,507.18 N	**DATE DRILLED**	20/12/2021
GROUND LEVEL (mOD)	58.53	**DATE LOGGED**	20/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of medium dense grey GRAVEL. Also contains brick and tar.					AA152169	B	0.00-0.60		
	Firm brown slightly sandy gravelly CLAY		0.60	57.93		AA152170	B	0.60-1.40	N = 8	
1.0										
	Stiff brownish grey sandy very gravelly CLAY.		1.40	57.13		AA152171	B	1.40-2.40	N = 21	
2.0										
	Stiff to very stiff grey silty CLAY with occasional fine gravel		2.40	56.13		AA152172	B	2.40-3.00		
			3.00	55.53					N = 50/40mm	
3.0	Final Depth 3.00m									
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS34**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,206.13 E 732,532.47 N	**DATE DRILLED**	14/12/2021
GROUND LEVEL (mOD)	57.68	**DATE LOGGED**	14/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162174	B	0.00-1.30		
	Soft to firm greyish brown sandy gravelly CLAY.		0.30	57.38					N = 10	
1.0	Stiff dark grey sandy very gravelly CLAY with low cobble content.		1.30	56.38		AA162175	B	1.30-1.70		
	Final Depth 1.70m		1.70	55.98					N = 38	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,185.76 E 732,546.28 N
GROUND LEVEL (mOD)	57.75
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS35**
SHEET	Sheet 1 of 1
DATE DRILLED	13/12/2021
DATE LOGGED	13/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA132831	B	0.00-1.10		
	Firm greyish brown sandy gravelly CLAY.		0.20	57.55						
1.0									N = 16	
	Stiff greyish black silty slightly sandy gravelly to very gravelly CLAY.		1.10	56.65		AA132832	B	1.10-3.00		
2.0									N = 28	
3.0	Final Depth 3.00m		3.00	54.75					N = 50/20mm	
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS36**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,247.44 E 732,547.01 N	**DATE DRILLED**	22/12/2021
GROUND LEVEL (mOD)	57.83	**DATE LOGGED**	22/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.10	57.73		AA152385	B	0.00-0.40		
	MADE GROUND firm dark brown very sandy gravelly CLAY.		0.40	57.43		AA152386	B	0.40-1.60		
1.0	Firm brown sandy gravelly CLAY.								N = 12	
	Firm dark grey silty slightly gravelly CLAY.		1.60	56.23		AA152387	B	1.60-2.00		
2.0	Stiff black sandy very gravelly CLAY with low to medium cobble content.		2.00	55.83		AA152388	B	2.00-2.50	N = 40	
	Final Depth 2.50m		2.50	55.33						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS37**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,218.86 E 732,566.72 N	**DATE DRILLED**	20/12/2021
GROUND LEVEL (mOD)	57.57	**DATE LOGGED**	20/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA132821	B	0.00-1.60		
			0.30	57.27						
	Firm greyish brown silty sandy gravelly to very gravelly CLAY with low cobble content.								N = 13	
1.0										
			1.60	55.97		AA132822	B	1.60-1.90		
	Stiff to very stiff black sandy very gravelly CLAY with medium cobble content.									
			1.90	55.67					N = 44	
	Final Depth 1.90m									
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT Clonburris SDZ Phase 1 AGI

BOREHOLE NO. **WS38**
SHEET Sheet 1 of 1

CO-ORDINATES 704,188.89 E
732,576.11 N
GROUND LEVEL (mOD) 57.54

DATE DRILLED 13/12/2021
DATE LOGGED 13/12/2021

CLIENT SDCC
ENGINEER AECOM

DRILLED BY Colm Kavanagh
LOGGED BY J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	57.34		AA162372	B	0.00-0.60		
	Firm light brown sandy slightly gravelly CLAY.		0.60	56.94		AA162373	B	0.60-1.20	N = 14	
1.0	Firm to stiff brownish grey silty sandy gravelly CLAY.		1.20	56.34		AA162374	B	1.20-1.50		
	Dense blackslightly sandy gravelly COBBLES		1.50	56.04					N = 50/25mm	
	Final Depth 1.50m									
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS40**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,232.03 E 732,624.43 N	**DATE DRILLED**	20/12/2021
GROUND LEVEL (mOD)	57.43	**DATE LOGGED**	20/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA132816	B	0.00-0.90		
	Soft to firm brown sandy gravelly CLAY with low cobble content.		0.30	57.13						
1.0	Stiff greenish grey silty sandy gravelly CLAY with low cobble content.		0.90	56.53		AA132817	B	0.90-1.70	N = 30	
2.0	Stiff black sandy very gravelly CLAY.		1.70	55.73		AA132818	B	1.70-2.40	N = 17	
	Final Depth 2.40m		2.40	55.03						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS41**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,198.49 E 732,646.66 N	**DATE DRILLED**	14/12/2021
GROUND LEVEL (mOD)	57.10	**DATE LOGGED**	14/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162389	B	0.00-1.00		
	Firm brown sandy gravelly CLAY with medium cobble content.		0.30	56.80						
1.0	Firm grey silty slightly sandy slightly gravelly CLAY		1.00	56.10		AA162390	B	1.00-1.60	N = 15	
	Stiff black sandy very gravelly CLAY.		1.60	55.50		AA162391	B	1.60-1.90		
2.0	Final Depth 1.90m		1.90	55.20					N = 31	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS42**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,229.11 E 732,650.97 N	**DATE DRILLED**	14/12/2021
GROUND LEVEL (mOD)	57.47	**DATE LOGGED**	14/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA132833	B	0.00-0.60		
			0.30	57.17						
	Firm brown slightly sandy SILT/CLAY with occasional gravel									
			0.60	56.87						
	Firm brownish grey sandy gravelly CLAY					AA132834	B	0.60-1.80	N = 10	
1.0										
			1.80	55.67		AA132835	B	1.80-2.60	N = 17	
2.0	Stiff to very stiff greyish black sandy very gravelly CLAY.									
			2.60	54.87						
	Final Depth 2.60m									
3.0										
4.0										
5.0										

General Remarks

Installations

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,229.79 E 732,665.52 N
GROUND LEVEL (mOD)	57.44
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS43**
SHEET	Sheet 1 of 1
DATE DRILLED	14/12/2021
DATE LOGGED	14/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	57.24		AA132827	B	0.00-0.60		
	Firm brown slightly sandy slightly gravelly CLAY.		0.60	56.84		AA132828	B	0.60-1.80		
1.0	Firm to stiffgrey silty sandy gravelly CLAY.								N = 24	
			1.80	55.64					N = 47	
2.0	Final Depth 1.80m									
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS44**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,206.72 E 732,677.91 N	**DATE DRILLED**	14/12/2021
GROUND LEVEL (mOD)	57.18	**DATE LOGGED**	14/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA132836	B	0.00-0.60		
	MADE GROUND comprised of soft brown sandy gravelly CLAY.		0.30	56.88						
	Firm to stiff brownish grey sandy gravelly CLAY with low cobble content.		0.60	56.58		AA132837	B	0.60-1.50		
1.0									N = 18	
	Final Depth 1.50m		1.50	55.68					N = 47	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS45**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,249.90 E 732,703.55 N	**DATE DRILLED**	14/12/2021
GROUND LEVEL (mOD)	57.79	**DATE LOGGED**	14/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162392	B	0.00-0.60		
	MADE GROUND comprised of firm light brown sandy gravelly CLAY.		0.20	57.59						
	Firm to stiff greyish brown sandy gravelly CLAY with low cobble content.		0.60	57.19		AA162393	B	0.60-1.70	N = 17	
1.0										
	Final Depth 1.70m		1.70	56.09					N = 43	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,271.31 E 732,679.31 N
GROUND LEVEL (mOD)	58.20
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS46**
SHEET	Sheet 1 of 1
DATE DRILLED	14/12/2021
DATE LOGGED	14/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162364	B	0.00-0.80		
	MADE GROUND comprised of firm brown sandy gravelly CLAY. Also contains pottery.		0.20	58.00						
	Firm to stiff greyish brown sandy gravelly CLAY.		0.80	57.40		AA162365	B	0.80-1.70	N = 24	
1.0										
2.0	Final Depth 2.00m		2.00	56.20					N = 44	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS47**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,304.67 E 732,700.15 N	**DATE DRILLED**	13/12/2021
GROUND LEVEL (mOD)	57.77	**DATE LOGGED**	13/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162165	B	0.00-0.90		
	Firm becoming stiff brown slightly sandy gravelly CLAY.		0.30	57.47						
1.0	Stiff grey slightly sandy gravelly CLAY.		0.90	56.87		AA162166	B	0.90-2.00	N = 21	
2.0	Stiff to very stiff black silty gravelly CLAY.		2.00	55.77		AA162167	B	2.00-2.90	N = 25	
3.0	Final Depth 2.90m		2.90	54.87					N = 50/10mm	
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS48**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,336.09 E 732,676.62 N	**DATE DRILLED**	13/12/2021
GROUND LEVEL (mOD)	58.39	**DATE LOGGED**	13/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm to stiff brown slightly sandy gravelly CLAY. Also contains red brick and tree branches.					AA162156	B	0.00-0.70		
	Stiff brown slightly sandy gravelly CLAY.		0.70	57.69		AA162157	B	0.70-1.10	N = 30	
1.0	Stiff to very stiff grey silty gravelly CLAY.		1.10	57.29		AA162158	B	1.10-2.00		
2.0	Final Depth 2.00m		2.00	56.39					N = 41	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS49**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,351.25 E 732,695.08 N	**DATE DRILLED**	15/12/2021
GROUND LEVEL (mOD)	58.81	**DATE LOGGED**	15/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL									
	Soft to firm brown sandy SILT/CLAY with occasional gravel		0.30	58.51		AA162369	B	0.30-1.50		
1.0	Firm to stiff brown gravelly CLAY		0.90	57.91					N = 23	
	Final Depth 1.50m		1.50	57.31						
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS50**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,405.41 E 732,656.56 N	**DATE DRILLED**	13/12/2021
GROUND LEVEL (mOD)	59.35	**DATE LOGGED**	13/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm brown sandy gravelly CLAY. Also contains tar and brick.					AA152195	B	0.00-0.50		
	Stiff greyish brown silty gravelly CLAY.		0.50	58.85		AA152196	B	0.50-2.00	N = 29	
1.0										
2.0	Final Depth 2.00m		2.00	57.35					N = 30	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS51**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,378.49 E 732,654.74 N	**DATE DRILLED**	13/12/2021
GROUND LEVEL (mOD)	59.31	**DATE LOGGED**	13/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm becoming stiff brownish grey gravelly CLAY.					AA152199	B	0.00-0.70		
	Stiff grey brown silty slightly sandy gravelly CLAY.		0.70	58.61		AA152200	B	0.70-2.00	N = 29	
1.0										
2.0	Final Depth 2.00m		2.00	57.31					N = 35	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS52**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,375.06 E 732,624.67 N	**DATE DRILLED**	15/12/2021
GROUND LEVEL (mOD)	58.80	**DATE LOGGED**	15/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples Ref. Number	Samples Sample Type	Samples Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA162384	B	0.00-0.30		
	MADE GROUND comprised of light brown/cream slightly clayey sandy gravelly COBBLES. Also contains concrete and plastic.		0.30	58.50		AA162385	B	0.30-1.10		
1.0	Final Depth 1.10m		1.10	57.70					N = 50/40mm	
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS53**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,398.63 E 732,612.04 N	**DATE DRILLED**	15/12/2021
GROUND LEVEL (mOD)	59.63	**DATE LOGGED**	15/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	MADE GROUND comprised of firm brown slightly sandy gravelly CLAY. Also contains brick and glass.					AA152187	B	0.00-0.80		
	Firm to stiff brown slightly sandy gravelly CLAY.		0.80	58.83		AA152188	B	0.80-2.20	N = 20	
1.0										
2.0	Medium dense brown sandy silty GRAVEL.		2.00	57.63					N = 50/35mm	
	Final Depth 2.20m		2.20	57.43						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
BOREHOLE NO.	**WS55**
SHEET	Sheet 1 of 1
CO-ORDINATES	704,387.68 E 732,583.56 N
GROUND LEVEL (mOD)	58.89
DATE DRILLED	16/12/2021
DATE LOGGED	16/12/2021
CLIENT	SDCC
ENGINEER	AECOM
DRILLED BY	Colm Kavanagh
LOGGED BY	C.Mattimoe

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA152197	B	0.00-0.50		
			0.30	58.59						
	Firm brown slightly sandy gravelly CLAY.									
			0.50	58.39		AA152198	B	0.50-1.10		
	Stiff brown slightly sandy very gravelly CLAY.								N = 29	
1.0										
	Final Depth 1.40m		1.40	57.49						
2.0										
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS58**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,304.56 E 732,551.93 N	**DATE DRILLED**	22/12/2021
GROUND LEVEL (mOD)	57.84	**DATE LOGGED**	22/12/2021
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.20	57.64		AA152375	B	0.00-1.30		
	Firm brown sandy gravelly CLAY with low cobble content.								N = 8	
1.0										
	Firmto stiff brownish grey silty CLAY with occasional fine gravel		1.30	56.54		AA152376	B	1.30-2.10		
2.0									N = 22	
	Stiff to very stiff black sandy very gravelly CLAY.		2.10	55.74		AA152377	B	2.10-2.60		
	Final Depth 2.60m		2.60	55.24					N = 48	
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI
CO-ORDINATES	704,246.31 E 732,536.10 N
GROUND LEVEL (mOD)	57.93
CLIENT	SDCC
ENGINEER	AECOM
BOREHOLE NO.	**WS59**
SHEET	Sheet 1 of 1
DATE DRILLED	16/12/2021
DATE LOGGED	16/12/2021
DRILLED BY	Colm Kavanagh
LOGGED BY	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL		0.10	57.83		AA132823	B	0.00-0.60		
	MADE GROUND comprised of firm brown very sandy very gravelly CLAY.									
	Firm greyish brown sandy gravelly CLAY with low cobble content.		0.60	57.33		AA132824	B	0.60-1.50	N = 11	
1.0										
	Firm grey silty slightly sandy gravelly CLAY.		1.50	56.43		AA132825	B	1.50-2.30	N = 30	
2.0										
	Stiff to very stiff black sandy very gravelly CLAY.		2.20	55.73		AA132826	B	2.30-3.00		
	Final Depth 3.00m		3.00	54.93					N = 33	
3.0										
4.0										
5.0										

General Remarks

Installations

Percussive Terrier Boring Record

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**BOREHOLE NO.**	**WS60**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,162.57 E 732,515.66 N	**DATE DRILLED**	16/12/2021
		DATE LOGGED	16/12/2021
GROUND LEVEL (mOD)	58.02		
CLIENT	SDCC	**DRILLED BY**	Colm Kavanagh
ENGINEER	AECOM	**LOGGED BY**	J. Condon

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Field Test Results	Standpipe Details
0.0	TOPSOIL					AA132819	B	0.00-1.00		
	Soft to firm brown sandy gravelly CLAY with low cobble content.		0.20	57.82						
1.0	Firm to stiff greyish brown silty sandy gravelly to very gravelly CLAY.		1.00	57.02		AA132820	B	1.00-2.30	N = 19	
2.0									N = 24	
	Final Depth 2.30m		2.30	55.72						
3.0										
4.0										
5.0										

General Remarks

Installations

PERCUSSIVE TERRIER BH PIEZO/SPT/SAMPLES 23784.GPJ IGSL.GDT 12/4/22

Appendix 2

Rotary Corehole Records

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC01**
		SHEET	Sheet 1 of 1
CO-ORDINATES	703,988.11 E 732,717.33 N	**DATE DRILLED**	12/01/2022
GROUND LEVEL (mOD)	56.04	**DATE LOGGED**	12/01/2022
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
RIG TYPE	BT-44		
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 returns of CLAY	1.50	54.54		
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY	2.60	53.44		
2	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	53.04		
3		100	42	23				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.30-3.39m, 3.81-3.90m, 4.00-4.24m, 6.57-6.60m, 6.67-6.69m & 6.85-6.87m). Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-180mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
4	4.50											
5		100	82	63	580							
6	6.00											
		100	44	10								
7	7.00											
		100	71	20								
8	8.00							End of Borehole at 8.00 m	8.00	48.04		
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.60	2.60	N/S			Slow

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
12-01-22	8.00	2.00	8.00	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
12-01-22	8.00	3.00	1.15	Water level recorded 5 mins after end of drilling.

IGSL_RC FI 10M_23784.GPJ_IGSL.GDT_12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC02**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,135.00 E 732,708.60 N	**DATE DRILLED**	18/01/2022
GROUND LEVEL (mOD)	56.59	**DATE LOGGED**	18/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	55.09		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 38 (3, 5, 5, 9, 11, 13)
3									3.00	53.59		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of clayey GRAVEL	3.40	53.19		N = 55/225 mm (7, 9, 12, 15, 28)
	3.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.50	53.09		
4		100	53	21				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.90-3.94m, 4.45-4.47m & 7.41-7.50m).				
	4.70											
5		100	72	38								
6	6.25							Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-40mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
7		100	50	25								
	7.80											
8		100	80	51								
	8.50								8.50	48.09		
9								End of Borehole at 8.50 m				

REMARKS

Hole cased 0.00-3.50m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
18-01-22	8.50	3.50	2.75	Water level recorded 5 mins after end of drilling.

IGSL_RC FI 10M 23784.GPJ IGSL.GDT 12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC03**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,072.42 E 732,644.34 N	**DATE DRILLED**	17/01/2022
GROUND LEVEL (mOD)	56.75	**DATE LOGGED**	17/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	55.25		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 36 (2, 5, 9, 7, 9, 11)
	3.00								2.80	53.95		
3								SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	53.75		N = 50/19 mm (25, 50)
		100	19	0				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.44-3.85m).				
4	4.00	100	57	44				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-10mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
5	5.50											
6		100	83	54								
	7.00											
7		100	70	41								
	8.00								8.00	48.75		
8								End of Borehole at 8.00 m				
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
17-01-22	8.00	3.00	1.70	Water level recorded 5 mins after end of drilling.

IGSL RC FI 10M 23784.GPJ IGSL.GDT 12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC04**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,036.16 E 732,584.91 N	**DATE DRILLED**	20/01/2022
GROUND LEVEL (mOD)	57.38	**DATE LOGGED**	20/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	55.88		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 36 (3, 7, 9, 8, 9, 10)
3									3.30	54.08		N = 57 (5, 9, 11, 12, 13, 21)
	3.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.50	53.88		
4		100	35	18				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.50-3.75m, 4.40-4.50m, 4.68-4.86m, 5.30-5.35m, 5.74-5.79m, 7.38-7.41m & 8.27-8.31m).				
	4.70											
5		100	12	0								
	5.95											
6		100	69	48				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-7mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
7	7.15											
		100	73	39								
8	8.50								8.50	48.88		
9								End of Borehole at 8.50 m				

REMARKS

Hole cased 0.00-3.50m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
20-01-22	8.50	3.50	1.85	Water level recorded 5 mins after end of drilling.

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC05**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,130.35 E 732,579.95 N	**DATE DRILLED**	19/01/2022
GROUND LEVEL (mOD)	55.65	**DATE LOGGED**	19/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	54.15		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY	2.70	52.95		
3	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	52.65		
4	4.50	100	77	41				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantly calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (6.45-6.46m).				
5	6.00	100	52	17				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-2mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
6	7.50	100	66	25								
7	8.00	100	80	42					8.00	47.65		
8								End of Borehole at 8.00 m				
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
19-01-22	8.00	3.00	1.10	Water level recorded 5 mins after end of drilling.

IGSL RC FI 10M 23784.GPJ IGSL.GDT 12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC06**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,060.68 E 732,533.00 N	**DATE DRILLED**	14/01/2022
GROUND LEVEL (mOD)	58.10	**DATE LOGGED**	14/01/2022
RIG TYPE	BT-44	**DRILLED BY**	IGSL
FLUSH	Air/Mist	**LOGGED BY**	D.O'Shea
CLIENT	SDCC		
ENGINEER	AECOM		
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				
1												
2												N = 39 (5, 7, 9, 9, 11, 10)
3	3.00								3.00	55.10		
3		100	61	38				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (5.42-5.44m & 7.11-7.13m).				N = 50/25 mm (25, 50)
4	4.50							Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-10mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
5		100	17	0								
6	6.00											
7		100	82	19								
7	7.50											
8		100	84	62								
8	8.00							End of Borehole at 8.00 m	8.00	50.10		
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
14-01-22	8.00	3.00	1.72	Water level recorded 5 mins after end of drilling.

IGSL RC FI 10M 23784.GPJ IGSL.GDT 12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC07**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,070.19 E 732,493.28 N	**DATE DRILLED**	13/01/2022
GROUND LEVEL (mOD)	58.18	**DATE LOGGED**	13/01/2022
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
RIG TYPE	BT-44		
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of clayey GRAVEL	2.80	55.38		N = 38 (5, 7, 7, 9, 11, 11)
3	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	55.18		N = 50/17 mm (25, 50)
	3.85	100	28	0				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.31-3.74m).				
4		100	47	29								
5	5.35	100	58	0								
6	6.00	100	61	34								
7	7.00	100	63	39								
8	8.00							End of Borehole at 8.00 m	8.00	50.18		
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
13-01-22	8.00	2.00	8.00	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC08**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,185.90 E 732,527.08 N	**DATE DRILLED**	21/01/2022
GROUND LEVEL (mOD)	57.85	**DATE LOGGED**	21/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	56.35		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 34 (3, 7, 7, 7, 11, 9)
									2.60	55.25		
	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	54.85		
3		100	44	17				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.41-3.49m & 4.22-4.29m).				N = 50/15 mm (25, 50)
4	4.15	100	62	18				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-25mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
5	5.45											
6		100	31	0								
7	7.00	100	62	10								
	8.00								8.00	49.85		
8								End of Borehole at 8.00 m				
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.60	2.60	N/S			Slow

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
21-01-22	8.00	3.00	2.25	Water level recorded 5 mins after end of drilling.

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC09**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,253.92 E 732,578.13 N	**DATE DRILLED**	11/01/2022
GROUND LEVEL (mOD)	57.61	**DATE LOGGED**	11/01/2022
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
RIG TYPE	BT-44		
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	56.11		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 28 (3, 5, 7, 7, 9, 5)
2									2.60	55.01		
	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	54.61		
3	3.40	100	40	0				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.19-3.41m, 3.53-3.55m, 4.26-4.28m, 4.31-4.34m, 4.55-4.67m & 7.15-7.17m).				
		100	44	14								
4	4.20											
		100	21	0								
5	5.00							Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-2mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
		100	24	0								
6	6.00											
		100	91	21								
7	7.00											
		100	72	41								
8	8.00								8.00	49.61		
								End of Borehole at 8.00 m				
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.50	2.50	N/S			Slow

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
11-01-22	8.00	2.00	8.00	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
11-01-22	8.00	3.00	1.20	Water level recorded 5 mins after end of drilling.

IGSL_RC FI 10M_23784.GPJ_IGSL.GDT_12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC10**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,192.12 E 732,619.90 N	**DATE DRILLED**	24/01/2022
GROUND LEVEL (mOD)	56.96	**DATE LOGGED**	24/01/2022
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
RIG TYPE	BT-44		
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	55.46		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 30 (5, 5, 7, 8, 9, 6)
3									3.30	53.66		N = 53/225 mm (7, 9, 9, 19, 25)
	3.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.50	53.46		
4		100	79	32				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.62-3.74m, 5.04-5.06m, 7.01-7.03m & 7.33-7.34m).				
	4.80											
5		100	69	42				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-15mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
	6.05											
6		100	63	26								
7	7.50											
8		100	66	49								
	8.50								8.50	48.46		
9								End of Borehole at 8.50 m				

REMARKS

Hole cased 0.00-3.50m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
24-01-22	8.50	3.50	2.35	Water level recorded 5 mins after end of drilling.

IGSL_RC FI 10M_23784.GPJ_IGSL.GDT_12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC11**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,212.21 E 732,691.88 N	**DATE DRILLED**	27/01/2022
GROUND LEVEL (mOD)	56.98	**DATE LOGGED**	27/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	55.48		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY	2.60	54.38		N = 35 (3, 7, 8, 7, 9, 11)
3	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	53.98		
4	4.35	100	18	0				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.58-3.64m, 4.00-4.09m, 5.18-5.22m, 6.40-6.46m, 7.27-7.31m & 7.57-7.59m).				N = 50/32 mm (25, 50)
5	5.70	100	65	36				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-10mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
6	7.00	100	58	51								
7	8.00	100	51	12					8.00	48.98		
8								End of Borehole at 8.00 m				
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
27-01-22	8.00	2.00	8.00	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
27-01-22	8.00	3.00	6.75	Water level recorded 5 mins after end of drilling.

IGSL_RC FI 10M 23784.GPJ IGSL.GDT 12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC12**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,304.23 E 732,676.35 N	**DATE DRILLED**	28/01/2022
GROUND LEVEL (mOD)	58.04	**DATE LOGGED**	28/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	56.54		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 46 (3, 7, 9, 11, 13, 13)
3									3.30	54.74		N = 50/35 mm (25, 50)
	3.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.50	54.54		
4		100	30	0				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (4.00-4.12m, 5.03-5.15m, 6.78-6.80m, 7.17-7.20m, 7.45-7.47m, 8.15-8.17m & 8.39-8.44m).				
	4.50											
5		100	49	22								
	6.00											
6		100	70	41				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-4mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
7	7.50											
8		100	38	0								
	8.50								8.50	49.54		
9								End of Borehole at 8.50 m				

REMARKS

Hole cased 0.00-3.50m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
28-01-22	8.50	3.50	3.40	Water level recorded 5 mins after end of drilling.

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC13**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,401.29 E 732,692.38 N	**DATE DRILLED**	25/01/2022
GROUND LEVEL (mOD)	59.39	**DATE LOGGED**	25/01/2022
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
RIG TYPE	BT-44		
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	57.89		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 38 (5, 9, 15, 7, 8, 8)
2												
3												N = 50 (7, 9, 12, 11, 12, 15)
	3.60								3.60	55.79		
4		100	25	0				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.60-3.82m, 4.37-4.39m, 4.53-4.57m, 5.32-5.39m, 5.51-5.57m, 5.83-5.88m, 7.19-7.23m, 8.13-8.15m & 8.22-8.26m). Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-40mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
	4.60											
5		100	17	8								
	6.15											
6												
		100	81	64	530							
7	7.60											
		100	51	12								
8	8.60								8.60	50.79		
9								End of Borehole at 8.60 m				

REMARKS

Hole cased 0.00-3.60m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
25-01-22	8.60	1.60	8.60	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
25-01-22	8.60	3.60	1.75	Water level recorded 5 mins after end of drilling.

IGSL_RC FI 10M_23784.GPJ_IGSL.GDT_12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC14**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,397.50 E 732,637.79 N	**DATE DRILLED**	27/01/2022
GROUND LEVEL (mOD)	59.34	**DATE LOGGED**	27/01/2022
CLIENT	SDCC	**DRILLED BY**	IGSL - DH
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
RIG TYPE	GEO205		
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of TOPSOIL	0.30	59.04		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey brown clayey sandy GRAVEL	0.88	58.46		
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey brown sandy gravelly CLAY				
2									2.20	57.14		N = 72 (4, 6, 10, 16, 19, 27)
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of BOULDER	2.50	56.84		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey brown sandy gravelly CLAY	2.90	56.44		
3	3.40							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.40	55.94		
4		100	71	39				Very strong to medium strong, thickly to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantely calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (5.54-5.61m, 5.66-5.71m, 7.58-7.60m & 8.33-8.35m).				
5	5.00							Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-12mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
		100	40	0								
6	6.60											
7		100	51	0								
8	8.10											
		100	92	58								
	8.60							End of Borehole at 8.60 m	8.60	50.74		
9												

REMARKS

Hole cased 0.00-3.40m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.40	3.40	N/S			Slow

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
27-01-22	8.60	3.40	2.30	Water level recorded 5 mins after end of drilling.

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL_RC FI 10M 23784.GPJ IGSL.GDT 12/4/22

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**DRILLHOLE NO**	**RC15**
		SHEET	Sheet 1 of 1
CO-ORDINATES	704,373.71 E 732,582.77 N	**DATE DRILLED**	26/01/2022
GROUND LEVEL (mOD)	58.51	**DATE LOGGED**	26/01/2022
RIG TYPE	BT-44		
FLUSH	Air/Mist		
CLIENT	SDCC	**DRILLED BY**	IGSL
ENGINEER	AECOM	**LOGGED BY**	D.O'Shea
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY				
1									1.50	57.01		
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 37 (2, 4, 7, 9, 11, 10)
									2.70	55.81		
	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of ROCK	3.00	55.51		
3		100	23	17				Very strong to medium strong, medium to thinly bedded (to very locally thinly laminated where fissile mudstone/shale), grey/dark grey/black, fine-grained, LIMESTONE (predominantly calci-siltite limestone with subordinate MUDSTONE, local stylolites, localised chert formation), slightly weathered to moderately weathered at fissile mudstone/shale zones at (3.31-3.72m, 3.89-4.56m & 6.27-6.38m).				N = 50/25 mm (25, 50)
4	4.50											
5		100	64	29				Discontinuities are medium to closely spaced, smooth to locally rough, planar to locally undulose. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-25mm thick). Dips are subhorizontal, 10-20° & locally 70-75°.				
6	6.00	100	29	0								
7	7.00	100	41	0								
	8.00								8.00	50.51		
8								End of Borehole at 8.00 m				
9												

REMARKS

Hole cased 0.00-3.00m. Erect Covid-19 Safe Zone - 1hr.

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
26-01-22	8.00	3.00	1.95	Water level recorded 5 mins after end of drilling.

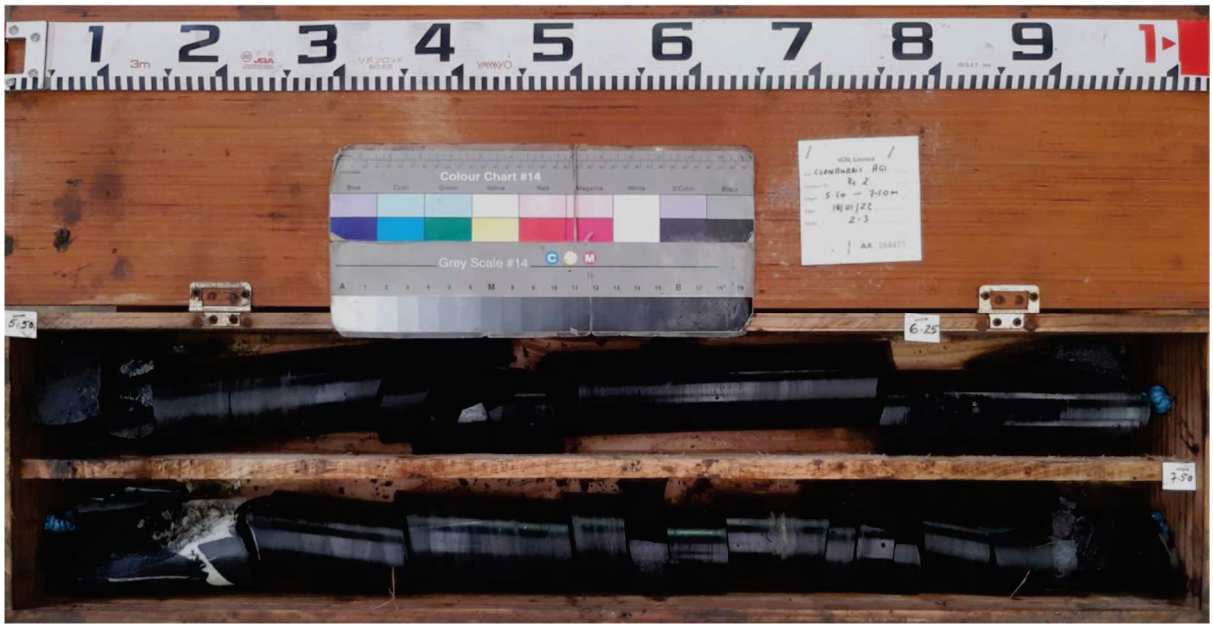
IGSL_RC FI 10M_23784.GPJ_IGSL.GDT_12/4/22

RC01 Box 1 of 2 – 3.00-6.00m

RC01 Box 2 of 2 – 6.00-8.00m

RC02 Box 1 of 3 – 3.50-5.50m

RC02 Box 2 of 3 – 5.50-7.50m



RC02 Box 3 of 3 – 7.50-8.50m

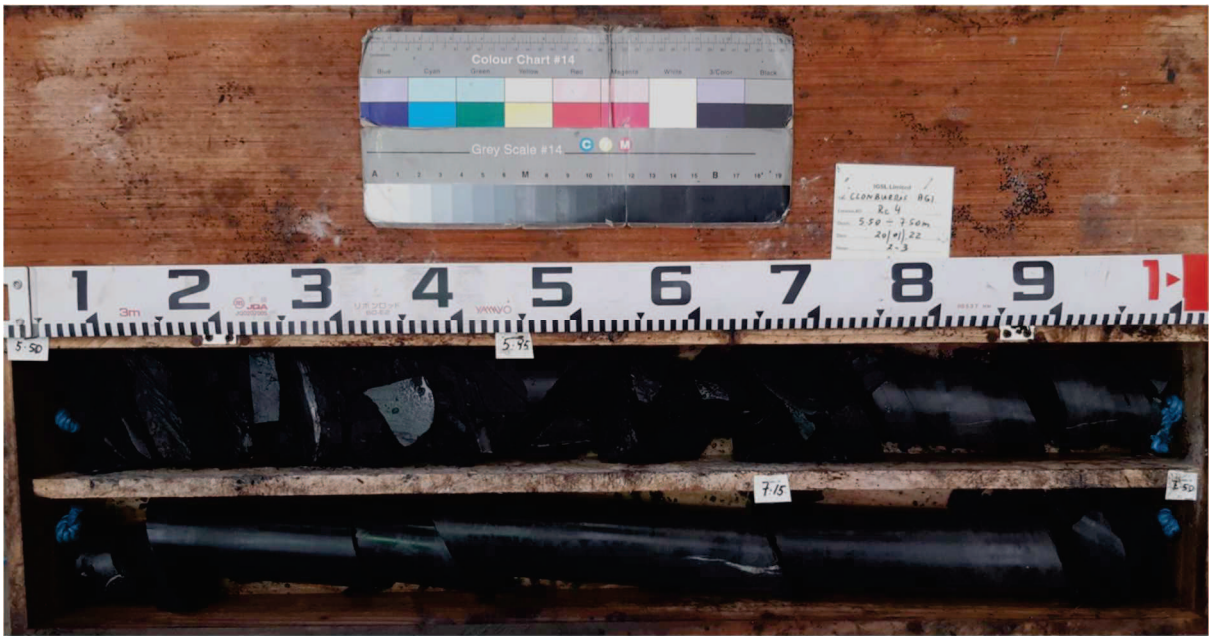
RC03 Box 1 of 3 – 3.00-5.00m

RC03 Box 2 of 3 – 5.00-7.00m

RC03 Box 3 of 3 – 7.00-8.00m

RC04 Box 1 of 3 – 3.50-5.50m

RC04 Box 2 of 3 – 5.50-7.50m



RC04 Box 3 of 3 – 7.50-8.50m

RC05 Box 1 of 3 – 3.00-5.00m

RC05 Box 2 of 3 – 5.00-7.00m

RC05 Box 3 of 3 – 7.00-8.00m

RC06 Box 1 of 3 – 3.00-5.00m

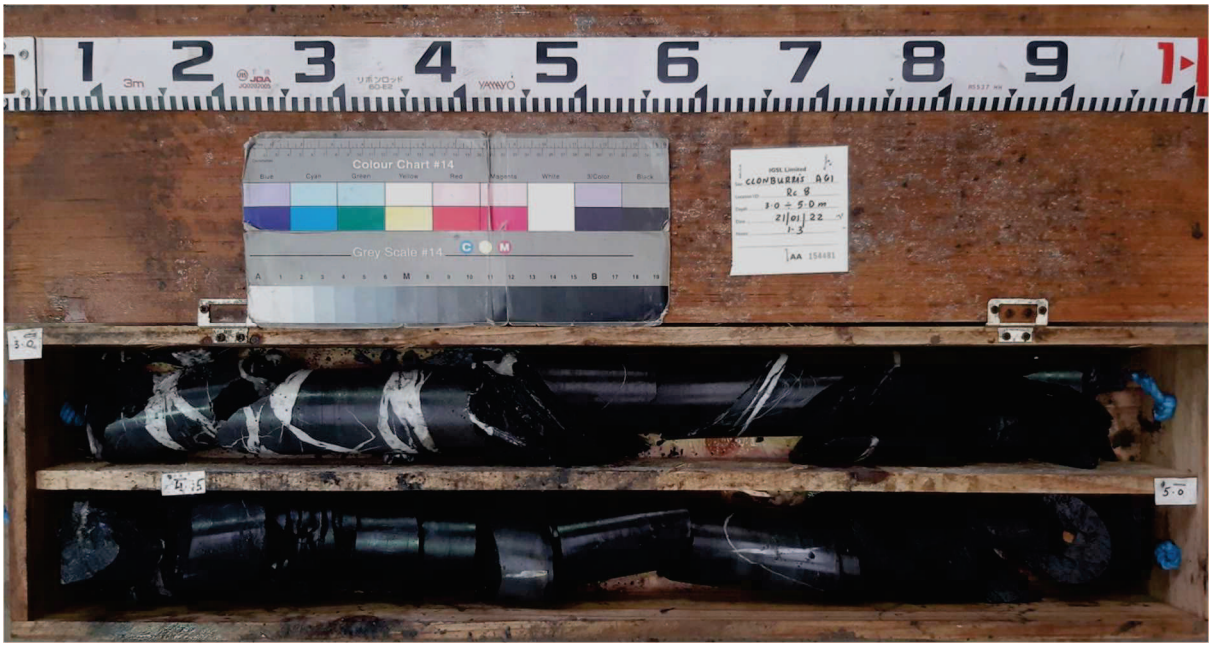
RC06 Box 2 of 3 – 5.00-7.00m

RC06 Box 3 of 3 – 7.00-8.00m

RC07 Box 1 of 2 – 3.00-6.00m

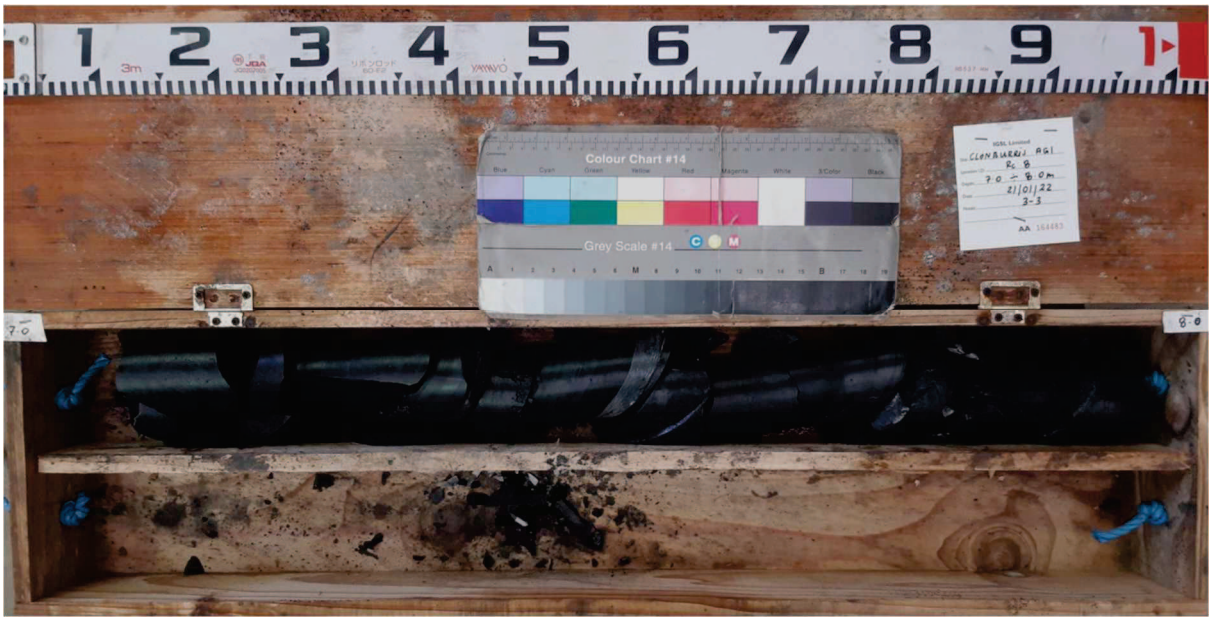
RC07 Box 2 of 2 – 6.00-8.00m

RC08 Box 1 of 3 – 3.00-5.00m



RC08 Box 2 of 3 – 5.00-7.00m

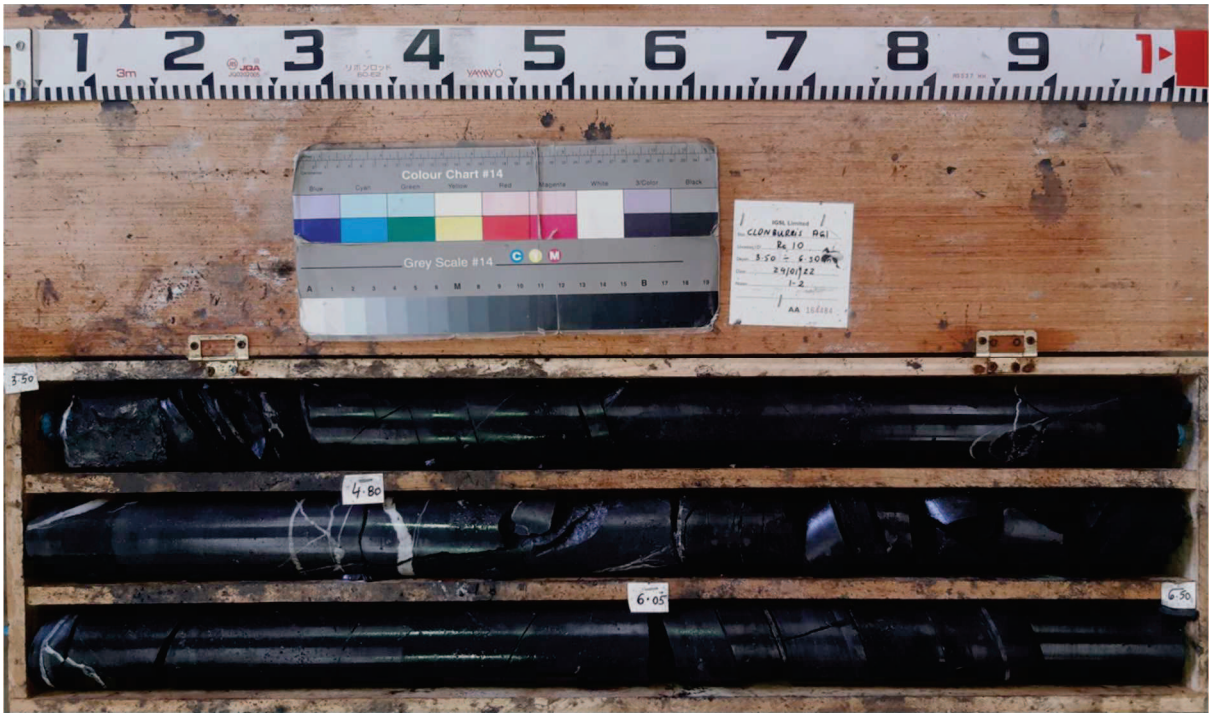
RC08 Box 3 of 3 – 7.00-8.00m



RC09 Box 1 of 2 – 3.00-6.00m

RC09 Box 2 of 2 – 6.00-8.00m

RC10 Box 1 of 2 – 3.50-6.50m

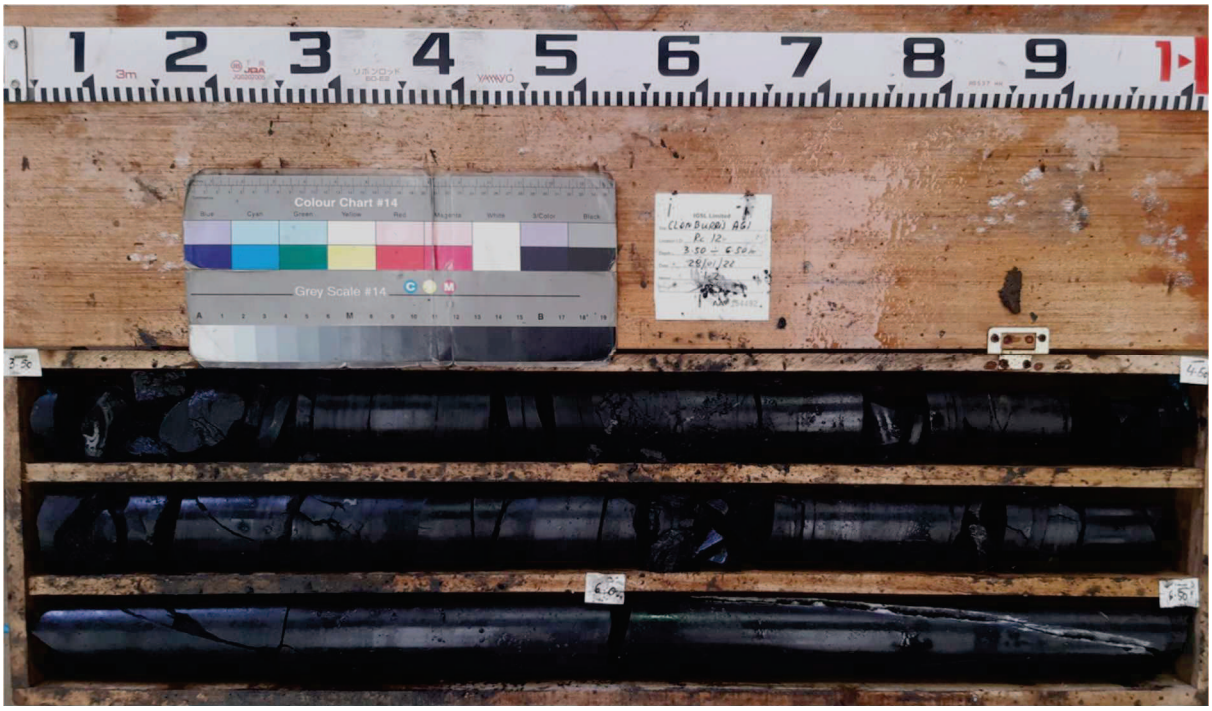


RC10 Box 2 of 2 – 6.50-8.50m

RC11 Box 1 of 2 – 3.00-6.00m

RC11 Box 2 of 2 – 6.00-8.00m

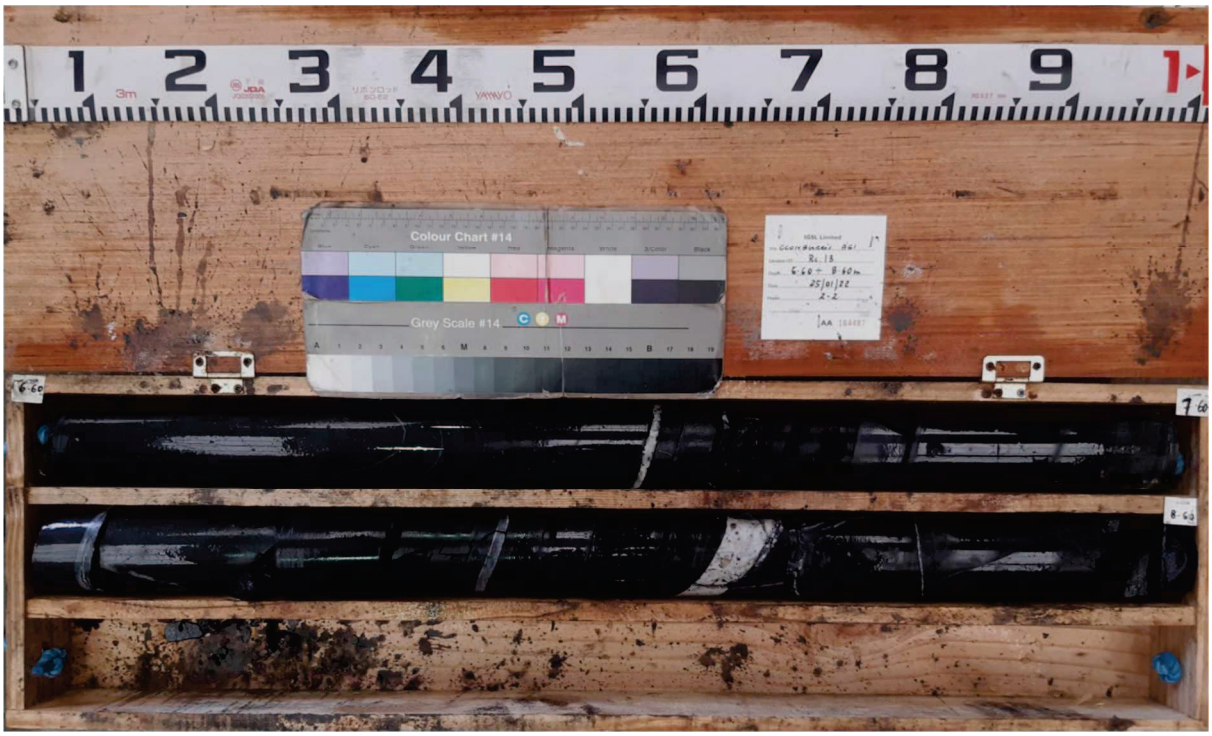
RC12 Box 1 of 2 – 3.50-6.50m



RC12 Box 2 of 2 – 6.50-8.50m

RC13 Box 1 of 2 – 3.60-6.60m

RC13 Box 2 of 2 – 6.60-8.60m



RC14 Box 1 of 2 – 3.40-6.10m

RC14 Box 2 of 2 – 6.10-8.60m

RC15 Box 1 of 2 – 3.00-6.00m

RC15 Box 2 of 2 – 6.00-8.00m

Appendix 3

Trial Pit Records

TRIAL PIT RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**TRIAL PIT NO.**	**SA01**
		SHEET	Sheet 1 of 1
LOGGED BY	J. Condon	**CO-ORDINATES**	704,006.46 E 732,598.91 N
		DATE STARTED	21/12/2021
		DATE COMPLETED	21/12/2021
CLIENT	SDCC	**GROUND LEVEL (m)**	57.40
ENGINEER	AECOM	**EXCAVATION METHOD**	Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
MADE GROUND comprised of compact black sandy very gravelly COBBLES		0.70	56.70						
Firm to stiff brownish grey sandy gravelly CLAY with medium cobble content and occasional boulders.		1.70	55.70						
Rock - LIMESTONE End of Trial Pit at 1.70m									

0.0
1.0
2.0
3.0
4.0

Groundwater Conditions
Dry

Stability
Stable

General Remarks

IGSL TP LOG 23784.GPJ IGSL.GDT 12/4/22

TRIAL PIT RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**TRIAL PIT NO.**	**SA02**
		SHEET	Sheet 1 of 1
LOGGED BY	J. Condon	**CO-ORDINATES**	704,184.92 E 732,649.03 N
		DATE STARTED	21/12/2021
		DATE COMPLETED	21/12/2021
CLIENT	SDCC	**GROUND LEVEL (m)**	56.98
ENGINEER	AECOM	**EXCAVATION METHOD**	Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	56.68						
Soft to firm greyish brown sandy very gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse, subangular to angular.									
1.0									
Firm to stiff greyish brown sandy very gravelly CLAY with medium to high cobble content and occasional boulders. Sand is fine to coarse. Gravel is fine to coarse, angular to very angular.		1.30	55.68						
2.0 Weathered rock recovered as compact dark greyish black sandy GRAVEL. LIMESTONE		2.00 2.10	54.98 54.88						
End of Trial Pit at 2.10m									
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 23784

CONTRACT	Clonburris SDZ Phase 1 AGI	**TRIAL PIT NO.**	**SA03**
		SHEET	Sheet 1 of 1
LOGGED BY	J. Condon	**CO-ORDINATES**	704,401.93 E 732,674.30 N
		DATE STARTED	21/12/2021
		DATE COMPLETED	21/12/2021
CLIENT	SDCC	**GROUND LEVEL (m)**	59.47
ENGINEER	AECOM	**EXCAVATION METHOD**	Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.20	59.27						
MADE GROUND comprised of firm brown sandy very gravelly CLAY with medium cobble content and occasional boulders. Sand is fine to coarse. Gravel is fine to coarse, subrounded to angular. Also contains tar, ceramics and plastic.									
1.0 Soft brown sandy CLAY. Sand is fine to coarse.		1.10	58.37						
Firm becoming stiff brown very sandy very gravelly CLAY with low to medium cobble content and occasional boulders . Sand is fine to coarse. Gravel is fine to coarse, angular to very angular.		1.60	57.87						
2.0 End of Trial Pit at 2.20m		2.20	57.27						
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks

IGSL TP LOG 23784.GPJ IGSL.GDT 12/4/22

23784 - Clonburris AGI
Trial pit photos

SA01 – 1 of 2

SA01 – 2 of 2

23784 - Clonburris AGI
Trial pit photos

SA02 – 1 of 3

SA02 – 2 of 3

23784 - Clonburris AGI
Trial pit photos

SA02 – 3 of 3

23784 - Clonburris AGI
Trial pit photos

SA03 – 1 of 3

SA03 – 2 of 3

23784 - Clonburris AGI
Trial pit photos

SA03 – 3 of 3

Appendix 4

Infiltration Test Records

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

Contract: Clonburris AGI Contract No. 23784
Test No. SA01 (cycle 01)
Client Aecom
Date: 21/12/2021

Summary of ground conditions

from	to	Description	Ground water
0.00	0.70	MADE GROUND comprised of compact sandy very gravelly COBBLES.	None observed
0.70	1.40	Firm to stiff sandy gravelly CLAY with medium cobble content.	

Notes: Samples:

Field Data

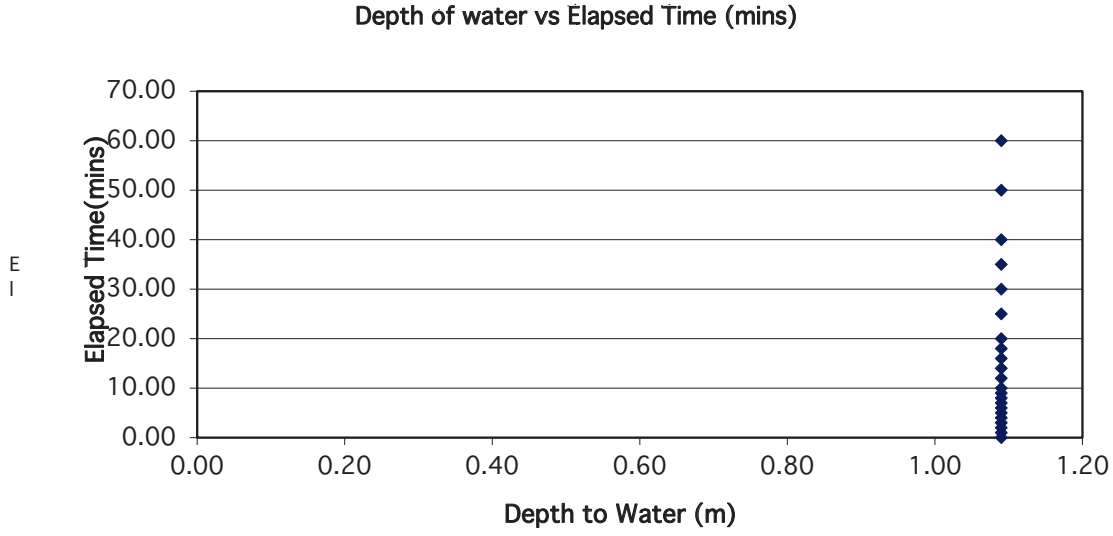
Depth to Water (m)	Elapsed Time (min)
1.09	0.00
1.09	1.00
1.09	2.00
1.09	3.00
1.09	4.00
1.09	5.00
1.09	6.00
1.09	7.00
1.09	8.00
1.09	9.00
1.09	10.00
1.09	12.00
1.09	14.00
1.09	16.00
1.09	18.00
1.09	20.00
1.09	25.00
1.09	30.00
1.09	35.00
1.09	40.00
1.09	50.00
1.09	60.00

Field Test

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.60	m
Initial depth to Water =	1.09	m
Final depth to water =	1.09	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.8	m2
*Av. side area of permeable stratum over test perio	1.302	m2
Total Exposed area =	2.102	m2

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

f= 0 m/min or 0 m/sec



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

Contract: Clonburris AGI Contract No. 23784
Test No. SA01 (cycle 02)
Client Aecom
Date: 21/12/2021

Summary of ground conditions

from	to	Description	Ground water
0.00	0.70	MADE GROUND comprised of compact sandy very gravelly COBBLES.	None observed
0.70	1.40	Firm to stiff sandy gravelly CLAY with medium cobble content.	

Notes: Samples:

Field Data

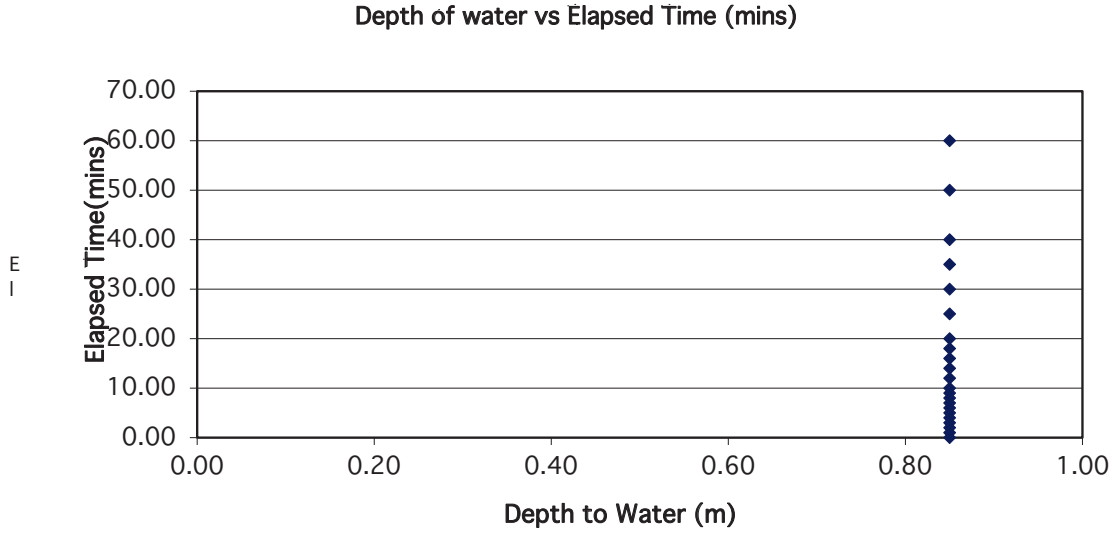
Depth to Water (m)	Elapsed Time (min)
0.85	0.00
0.85	1.00
0.85	2.00
0.85	3.00
0.85	4.00
0.85	5.00
0.85	6.00
0.85	7.00
0.85	8.00
0.85	9.00
0.85	10.00
0.85	12.00
0.85	14.00
0.85	16.00
0.85	18.00
0.85	20.00
0.85	25.00
0.85	30.00
0.85	35.00
0.85	40.00
0.85	50.00
0.85	60.00

Field Test

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.60	m
Initial depth to Water =	0.85	m
Final depth to water =	0.85	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.8	m2
*Av. side area of permeable stratum over test perio	2.31	m2
Total Exposed area =	3.11	m2

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

f= 0 m/min or 0 m/sec



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

Contract: Clonburris AGI Contract No. 23784
Test No. SA02 (cycle 01)
Client Aecom
Date: 21/12/2021

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	TOPSOIL	None observed
0.30	1.30	Soft to firm sandy very gravelly CLAY with medium cobble content.	
1.30	1.50	Firm to stiff sandy very gravelly CLAY with medium cobble content.	

Notes: Samples:

Field Data

Depth to Water (m)	Elapsed Time (min)
0.86	0.00
0.86	1.00
0.86	2.00
0.86	3.00
0.86	4.00
0.86	5.00
0.86	6.00
0.86	7.00
0.86	8.00
0.86	9.00
0.86	10.00
0.86	12.00
0.86	14.00
0.86	16.00
0.86	18.00
0.86	20.00
0.86	25.00
0.86	30.00
0.86	35.00
0.86	40.00
0.86	50.00
0.86	60.00

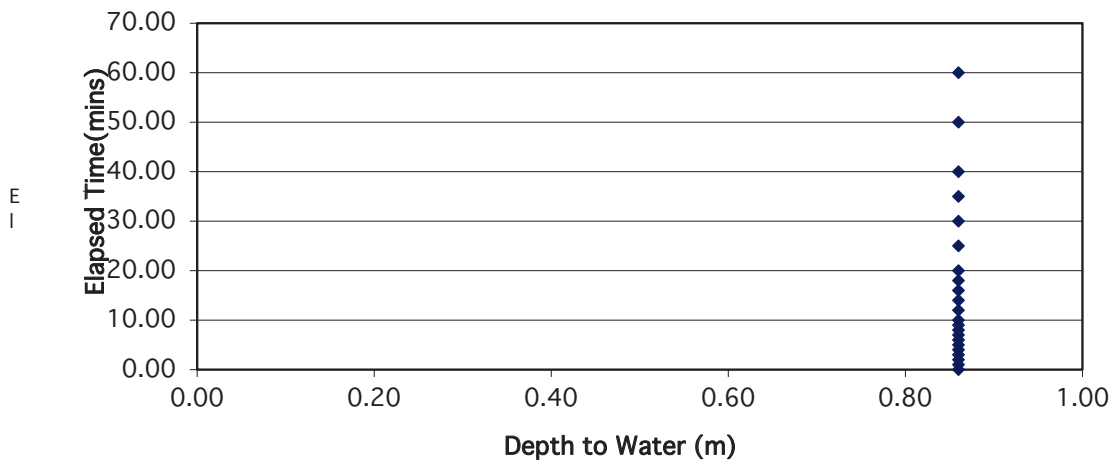
Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.70	m
Initial depth to Water =	0.86	m
Final depth to water =	0.86	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.85	m2
*Av. side area of permeable stratum over test perio	2.816	m2
Total Exposed area =	3.666	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: Clonburris AGI Contract No. 23784
Test No. SA02 (cycle 02)
Client Aecom
Date: 21/12/2021

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	TOPSOIL	None observed
0.30	1.30	Soft to firm sandy very gravelly CLAY with medium cobble content.	
1.30	1.50	Firm to stiff sandy very gravelly CLAY with medium cobble content.	

Notes: Samples:

Field Data

Depth to Water (m)	Elapsed Time (min)
0.51	0.00
0.51	1.00
0.51	2.00
0.51	3.00
0.51	4.00
0.51	5.00
0.51	6.00
0.51	7.00
0.51	8.00
0.51	9.00
0.51	10.00
0.51	12.00
0.51	14.00
0.51	16.00
0.51	18.00
0.51	20.00
0.51	25.00
0.51	30.00
0.51	35.00
0.51	40.00
0.51	50.00
0.51	60.00

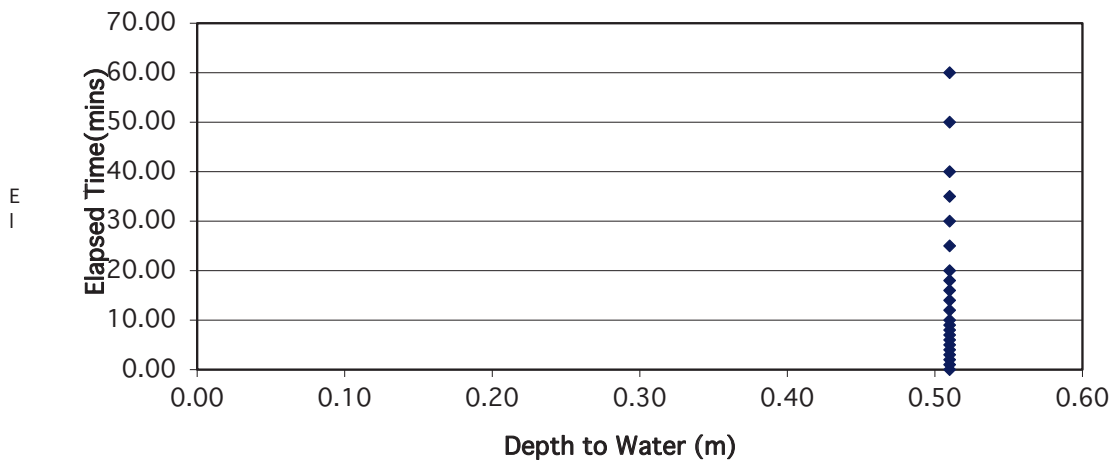
Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.70	m
Initial depth to Water =	0.51	m
Final depth to water =	0.51	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.85	m2
*Av. side area of permeable stratum over test perio	4.356	m2
Total Exposed area =	5.206	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: Clonburris AGI Contract No. 23784
Test No. SA03 (cycle 01)
Client Aecom
Date: 21/12/2021

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	
0.20	1.10	MADE GROUND comprised of firm brown sandy very gravelly CLAY	None observed
1.10	1.60	Soft brown sandy CLAY.	
1.60	1.70	Firm becoming stiff very sandy very gravelly CLAY with medium cobble content.	

Notes: Samples:

Field Data

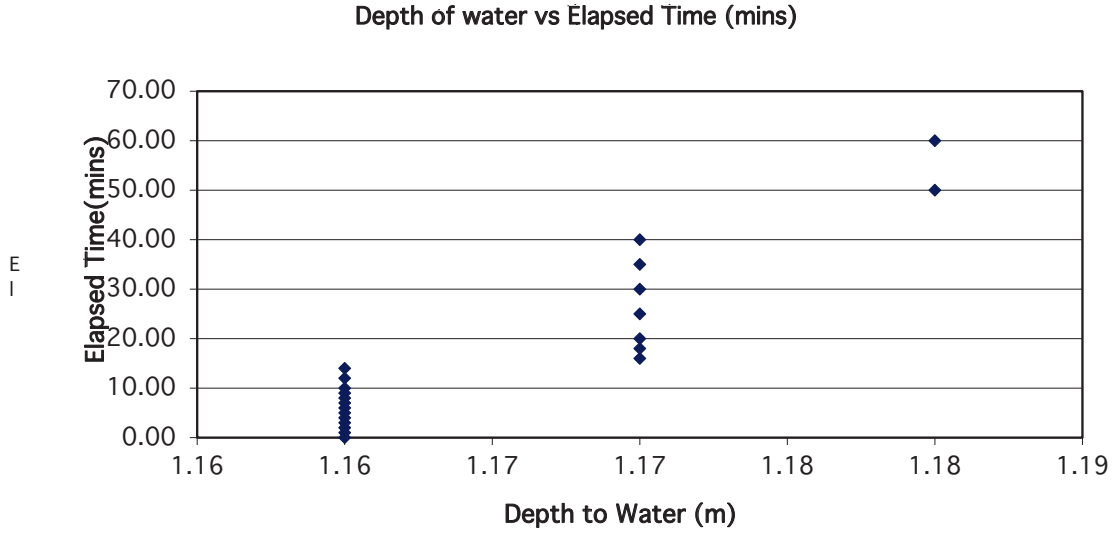
Depth to Water (m)	Elapsed Time (min)
1.16	0.00
1.16	1.00
1.16	2.00
1.16	3.00
1.16	4.00
1.16	5.00
1.16	6.00
1.16	7.00
1.16	8.00
1.16	9.00
1.16	10.00
1.16	12.00
1.16	14.00
1.17	16.00
1.17	18.00
1.17	20.00
1.17	25.00
1.17	30.00
1.17	35.00
1.17	40.00
1.18	50.00
1.18	60.00

Field Test

Depth of Pit (D)	1.70	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.80	m
Initial depth to Water =	1.16	m
Final depth to water =	1.18	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.9	m2
*Av. side area of permeable stratum over test perio	2.438	m2
Total Exposed area =	3.338	m2

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

f= 9E-05 m/min or 1.498E-06 m/sec



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

Contract: Clonburris AGI Contract No. 23784
Test No. SA03 (cycle 02)
Client Aecom
Date: 21/12/2021

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	
0.20	1.10	MADE GROUND comprised of firm brown sandy very gravelly CLAY	None observed
1.10	1.60	Soft brown sandy CLAY.	
1.60	1.70	Firm becoming stiff very sandy very gravelly CLAY with medium cobble content.	

Notes: Samples:

Field Data

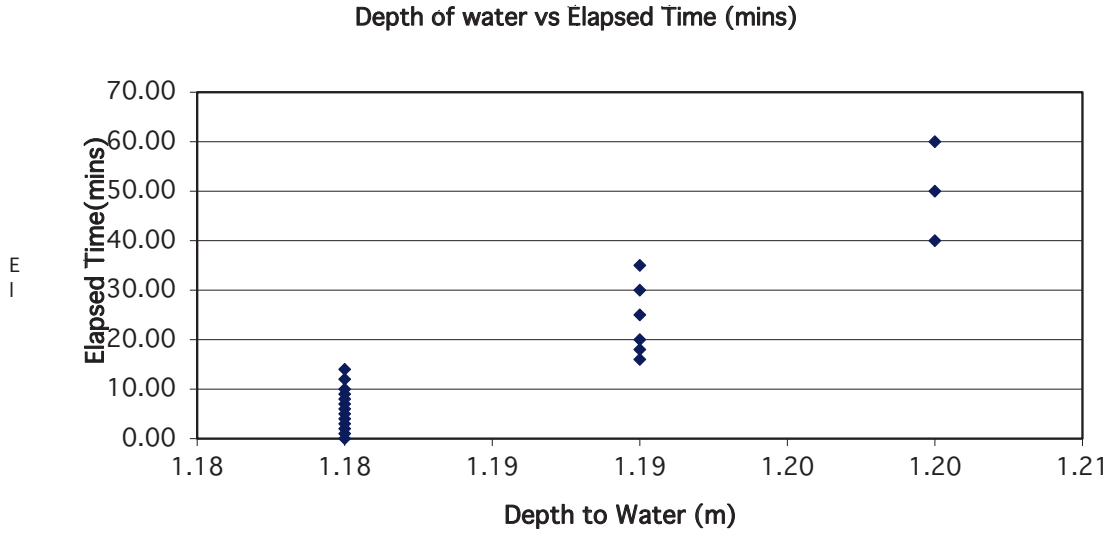
Depth to Water (m)	Elapsed Time (min)
1.18	0.00
1.18	1.00
1.18	2.00
1.18	3.00
1.18	4.00
1.18	5.00
1.18	6.00
1.18	7.00
1.18	8.00
1.18	9.00
1.18	10.00
1.18	12.00
1.18	14.00
1.19	16.00
1.19	18.00
1.19	20.00
1.19	25.00
1.19	30.00
1.19	35.00
1.20	40.00
1.20	50.00
1.20	60.00

Field Test

Depth of Pit (D)	1.70	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.80	m
Initial depth to Water =	1.18	m
Final depth to water =	1.20	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.9	m2
*Av. side area of permeable stratum over test perio	2.346	m2
Total Exposed area =	3.246	m2

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

f= 9.2E-05 m/min or 1.54E-06 m/sec



Appendix 5

Plate Bearing Tests

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

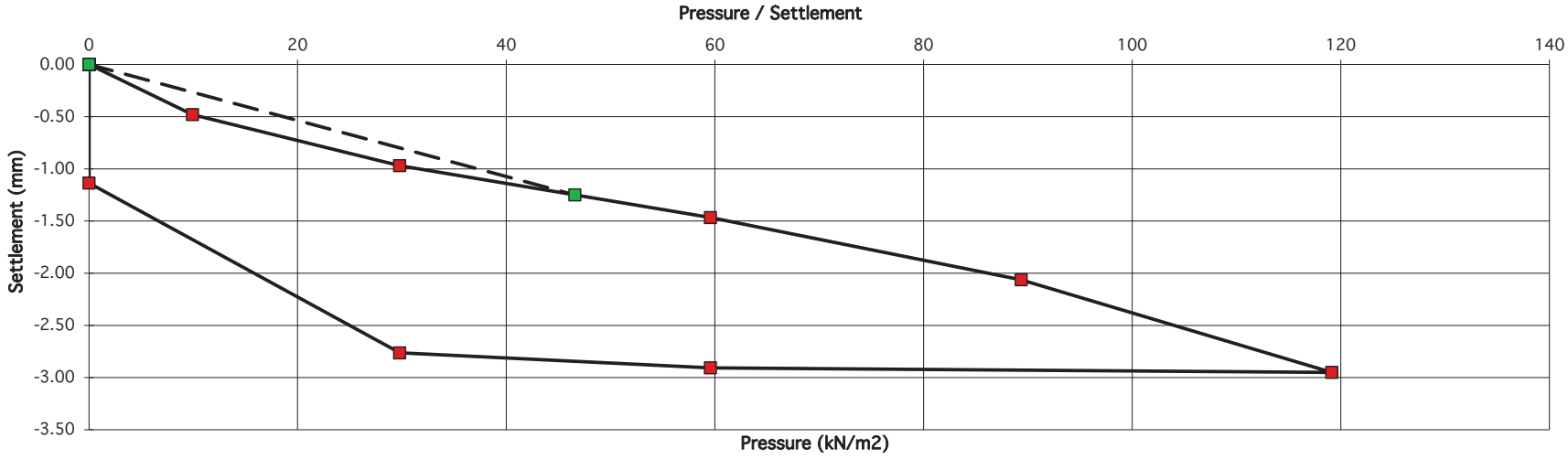
Reference No.	R129939
Contract	Clonburris AGI
Test No.	PT01 Load
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 37
Modulus of subgrade reaction = 24 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 2.4 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

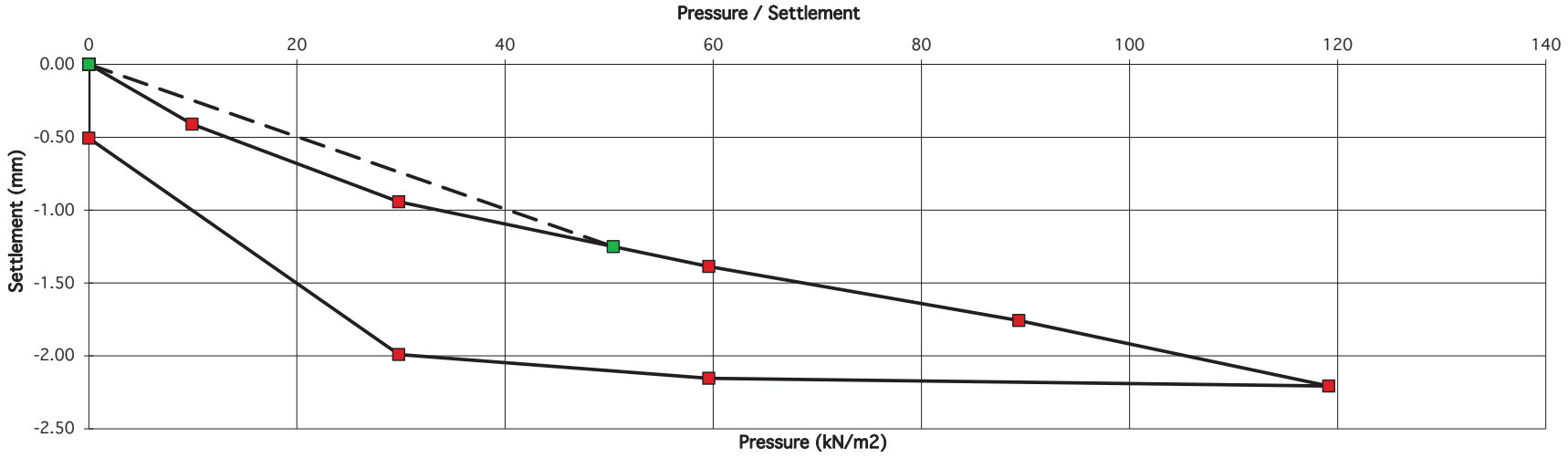
Reference No.	R129939
Contract	Clonburris AGI
Test No.	PT01 Reload
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 40
Modulus of subgrade reaction = 26 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 2.7 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

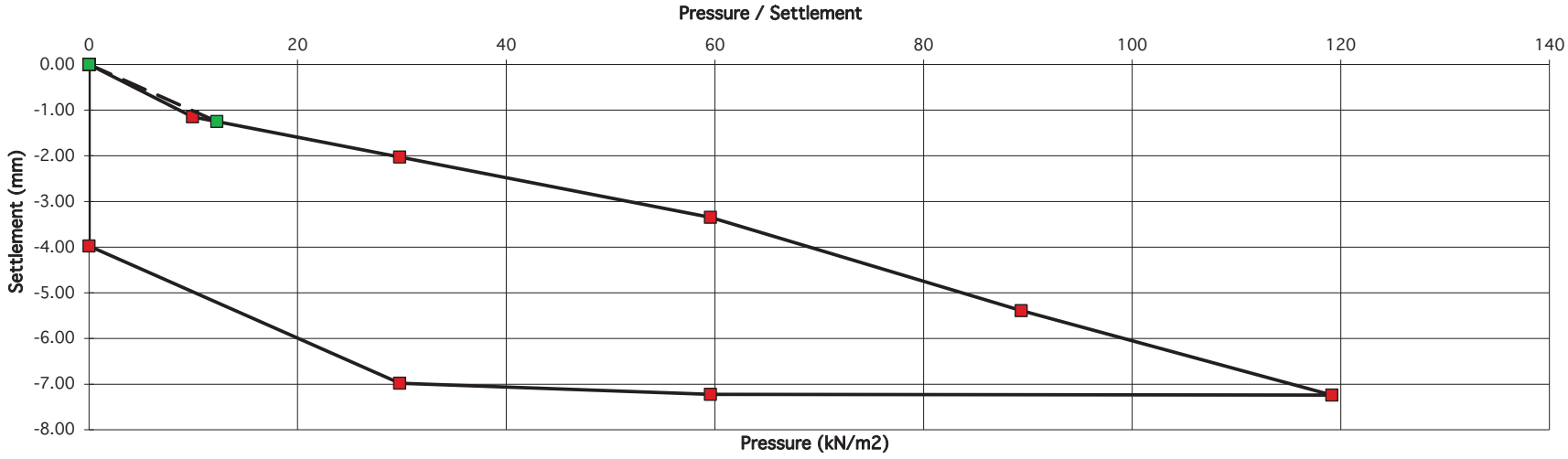
Reference No.	R129940
Contract	Clonburris AGI
Test No.	PT02 Load
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 10
Modulus of subgrade reaction = 6 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 0.2 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

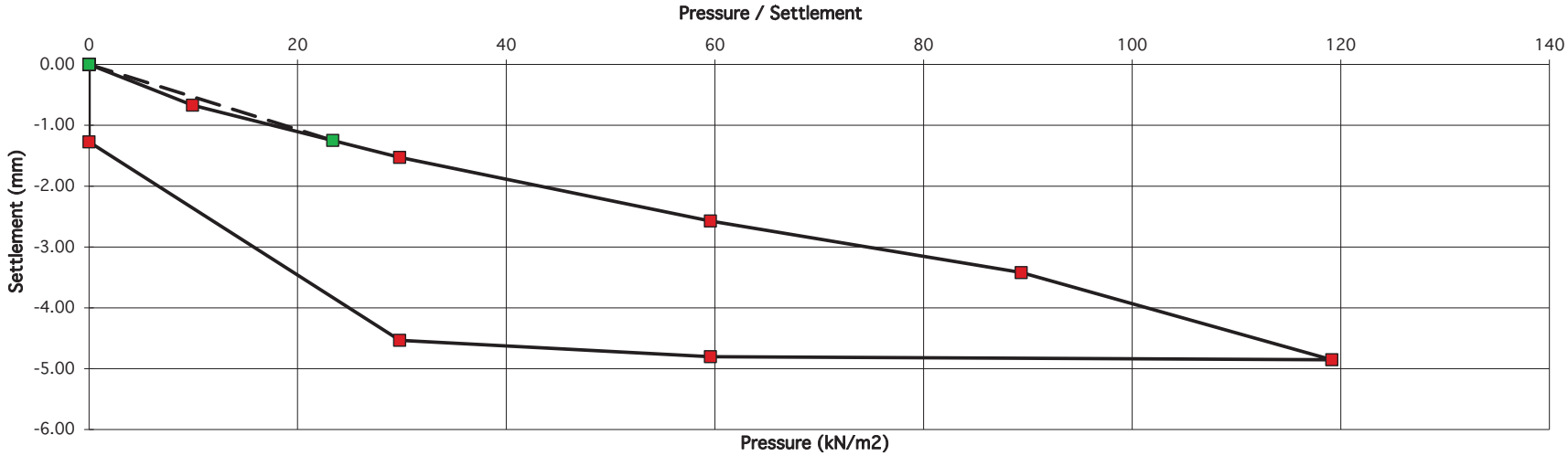
Reference No.	R129940
Contract	Clonburris AGI
Test No.	PT02 Reload
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 19
Modulus of subgrade reaction = 12 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 0.7 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

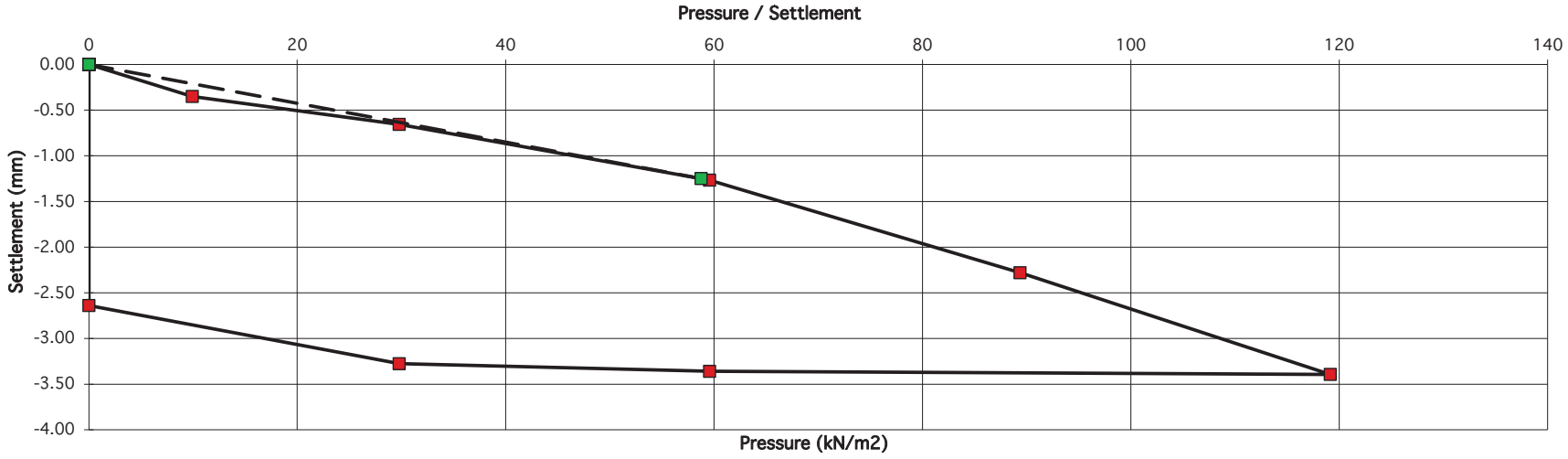
Reference No.	R129941
Contract	Clonburris AGI
Test No.	PT03 Load
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 47
Modulus of subgrade reaction = 30 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 3.5 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

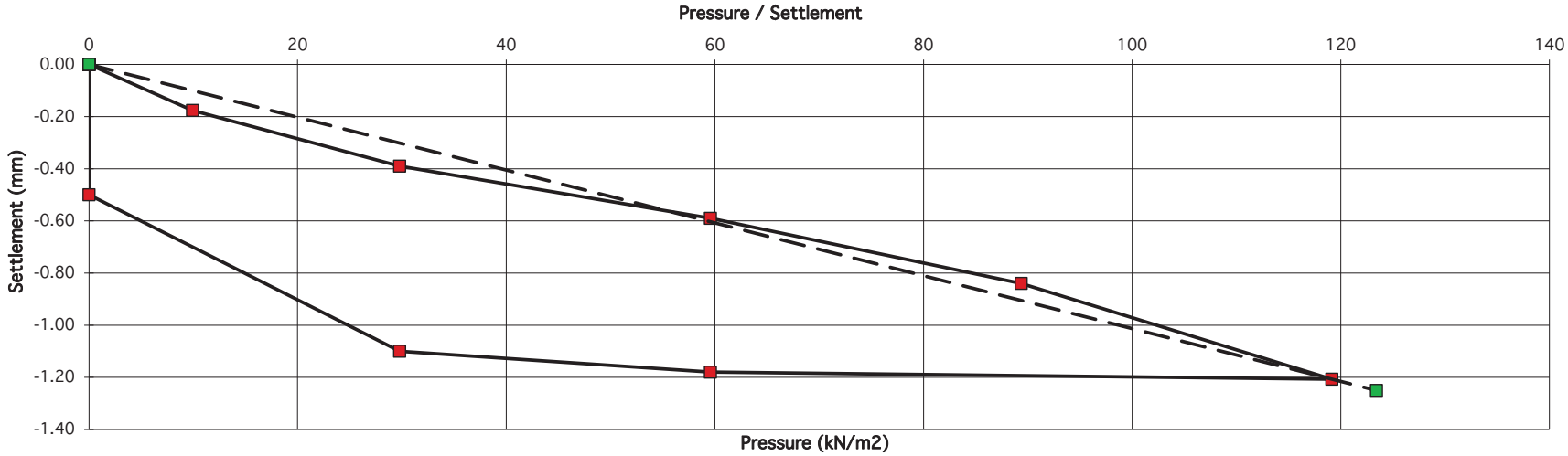
Reference No.	R129941
Contract	Clonburris AGI
Test No.	PT03 Reload
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 99
Modulus of subgrade reaction = 63 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 12.8 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

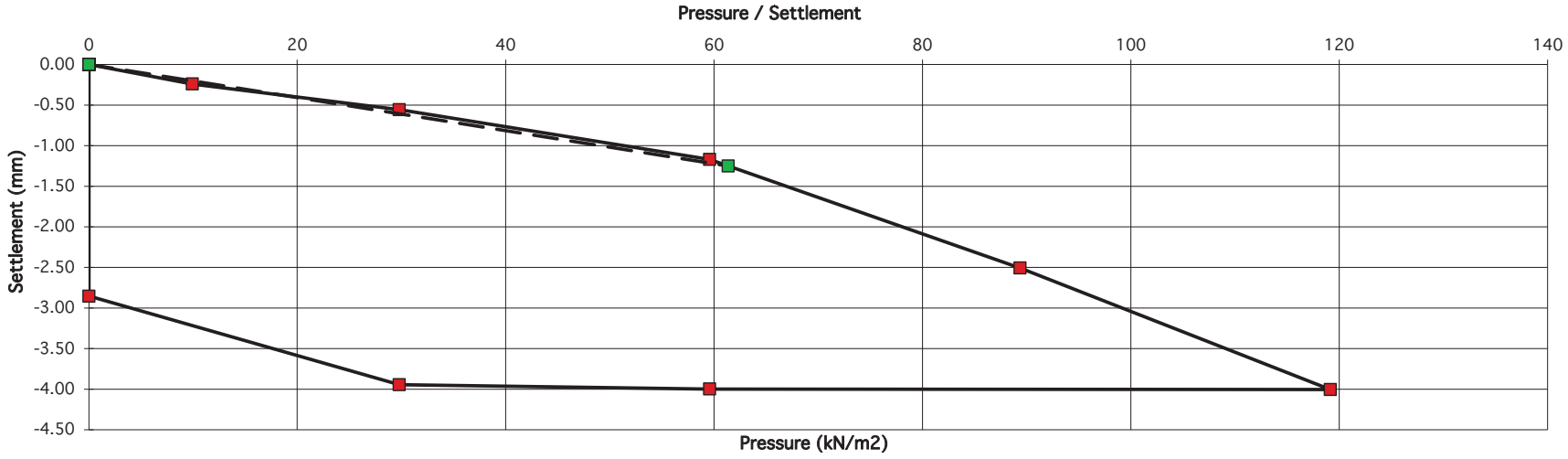
Reference No.	R129942
Contract	Clonburris AGI
Test No.	PT04 Load
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 49
Modulus of subgrade reaction = 32 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 3.8 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

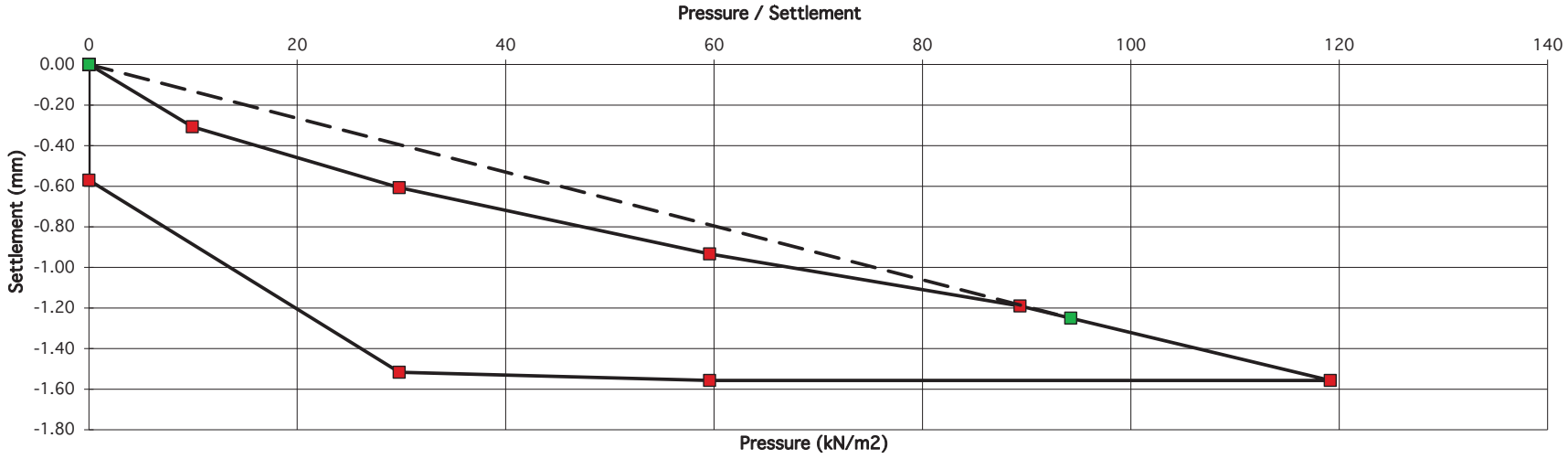
Reference No.	R129942
Contract	Clonburris AGI
Test No.	PT04 Reload
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 75
Modulus of subgrade reaction = 48 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 8.0 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

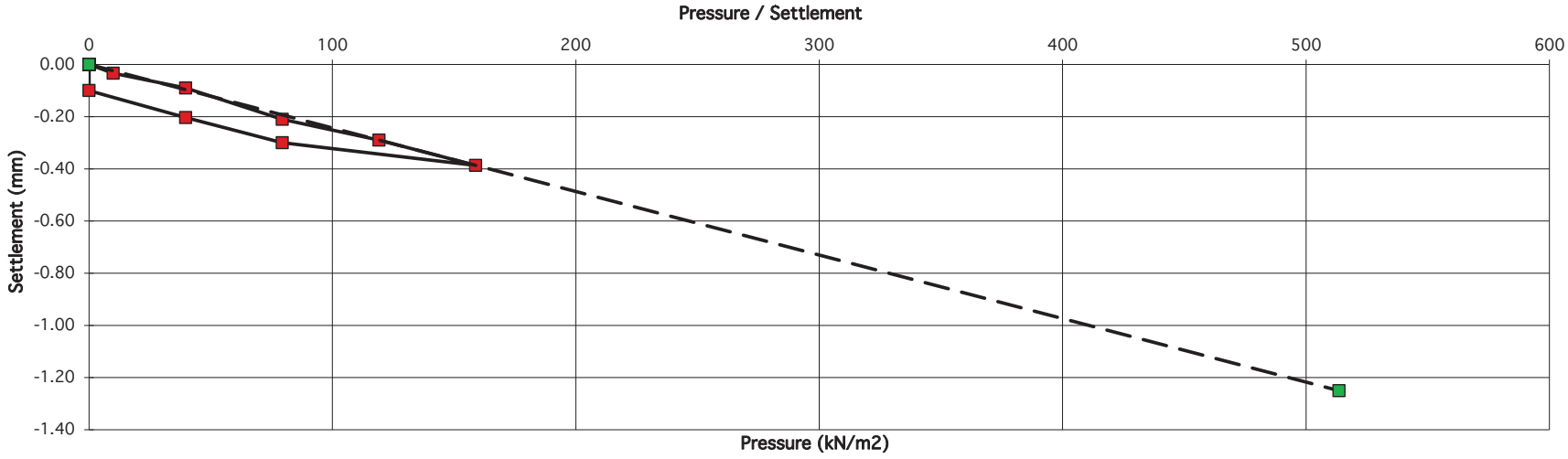
Reference No.	R129943
Contract	Clonburris AGI
Test No.	PT05 Load
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 411
Modulus of subgrade reaction = 264 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 151.8 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

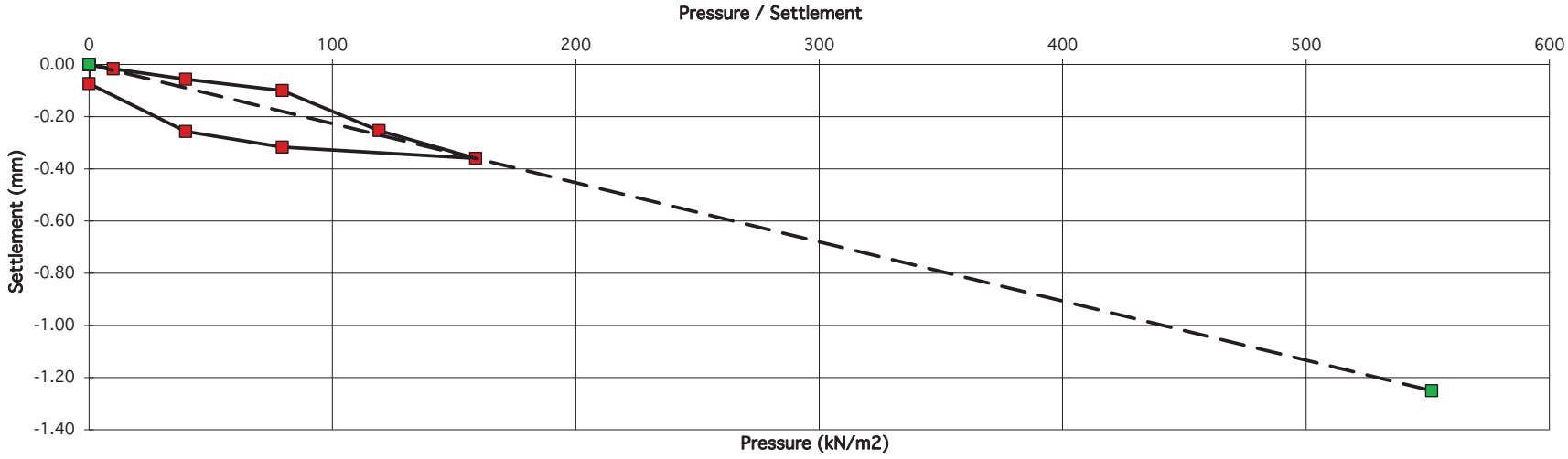
Reference No.	R129943
Contract	Clonburris AGI
Test No.	PT05 Reload
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 441
Modulus of subgrade reaction = 284 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 171.8 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

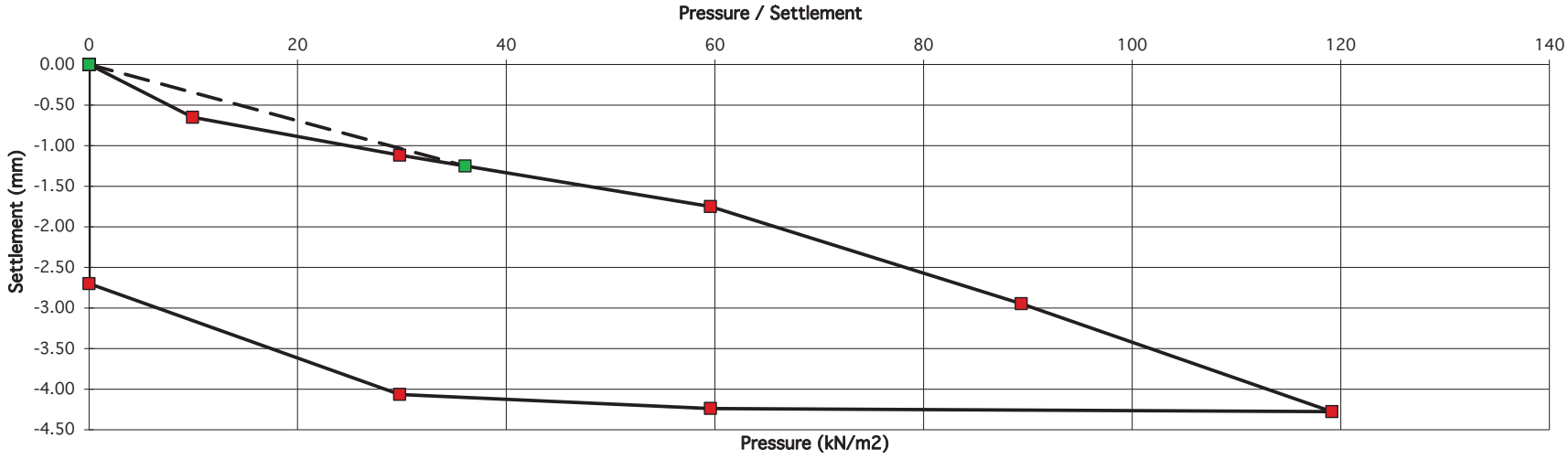
Reference No.	R129944
Contract	Clonburris AGI
Test No.	PT06 Load
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 29
Modulus of subgrade reaction = 19 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.5 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

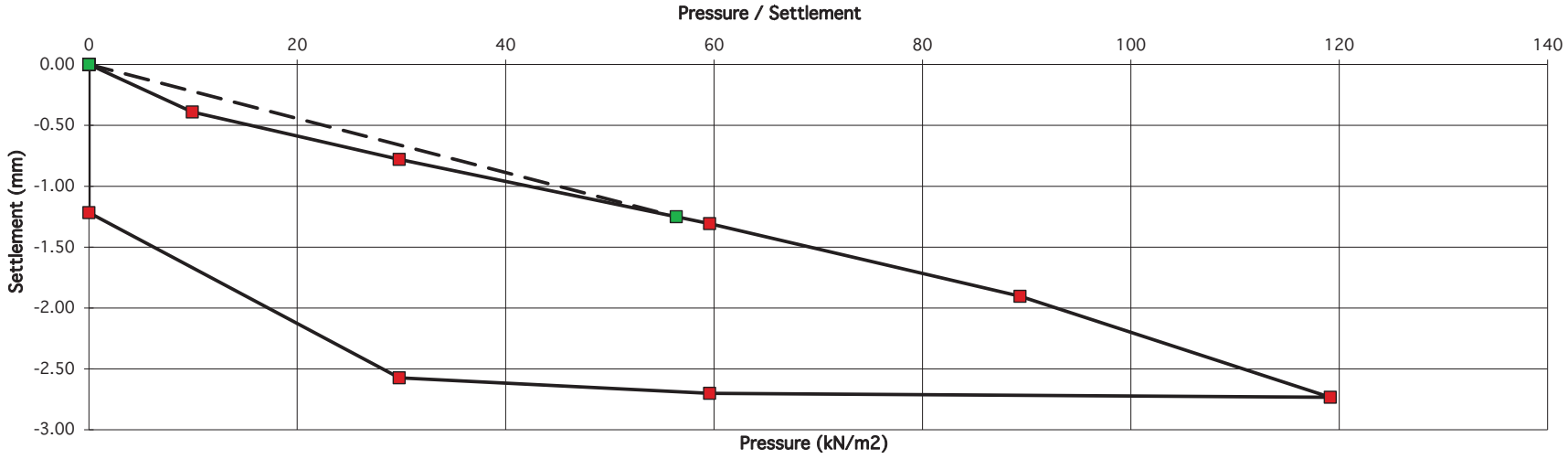
Reference No.	R129944
Contract	Clonburris AGI
Test No.	PT06 Reload
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 45
Modulus of subgrade reaction = 29 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 3.3 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

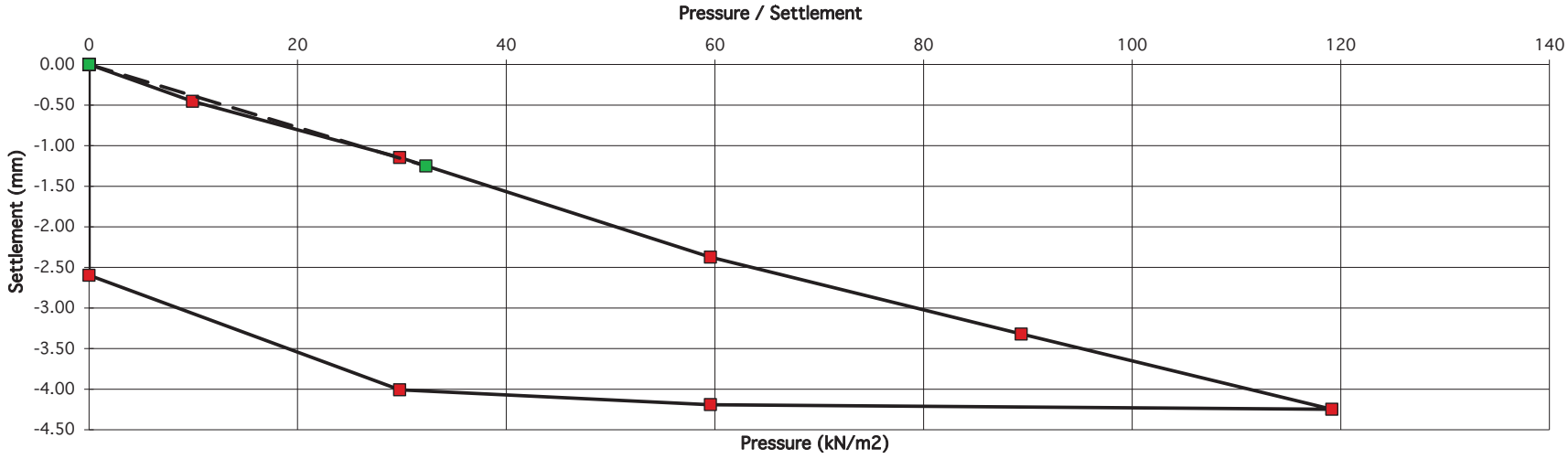
Reference No.	R129945
Contract	Clonburris AGI
Test No.	PT07 Load
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 26
Modulus of subgrade reaction = 17 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.3 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

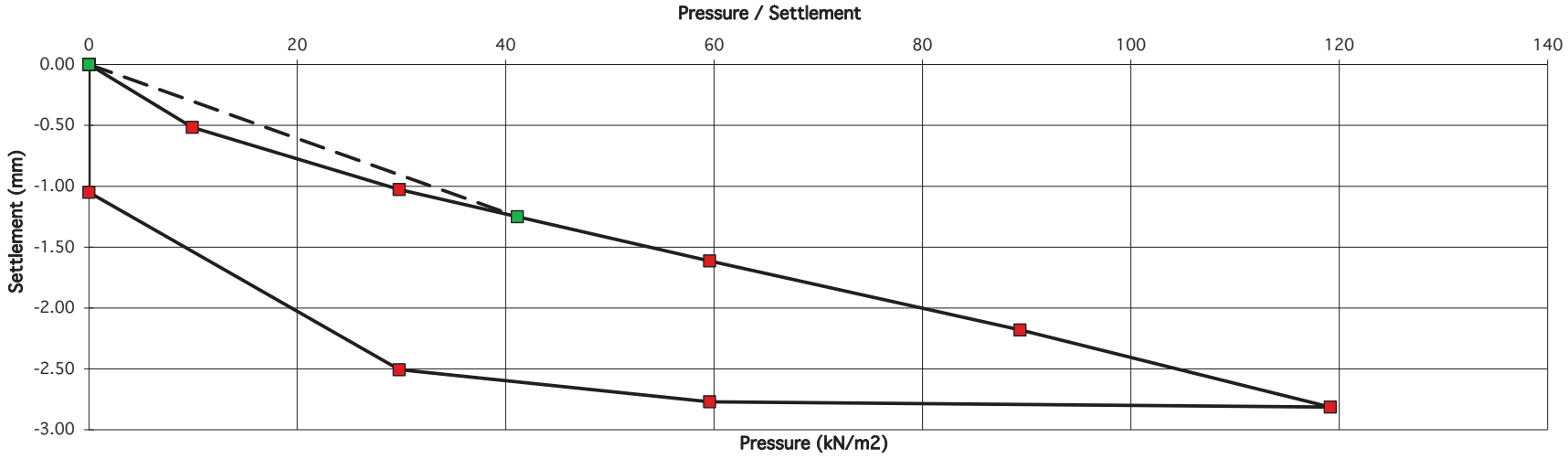
Reference No.	R129945
Contract	Clonburris AGI
Test No.	PT07 Reload
Location	See site map
Depth	0.4m
Client	Aecom
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	J. Condon
Authorised by	
Date	20/12/2021

Description of soil under test
(natural soil, placed fill, sub-base)

Brown sandy gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 33
Modulus of subgrade reaction = 21 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.9 %

Appendix 6

TRL DCP Probe Records

Dynamic Cone Penetrometer

IGSL Field Records and Temps (F20)

Contract	SDCC Lands at Clonburris
Client	SDCC
Contract No.	23784

Date: 19/01/2022 **Test No. CBR01**

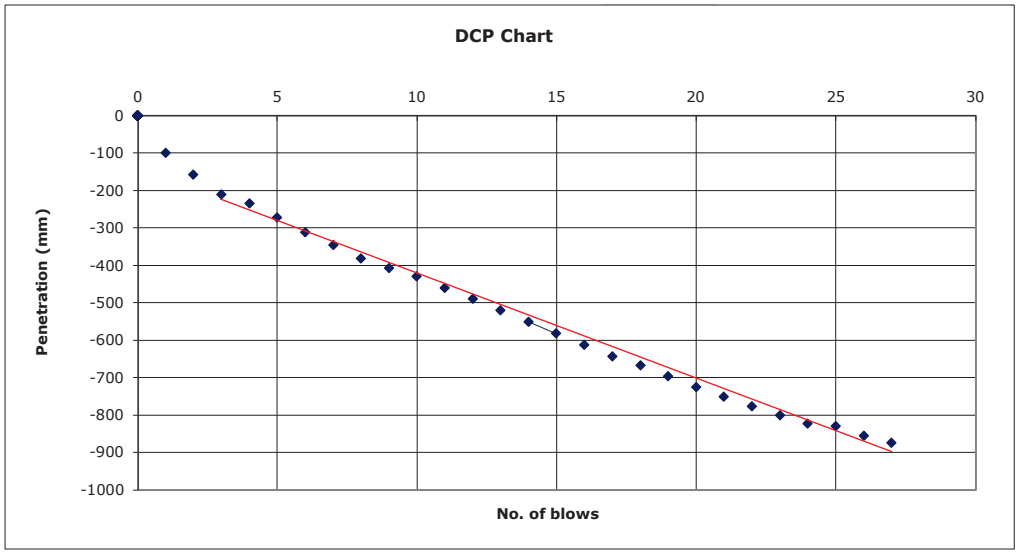
DCP Zero Reading 73 mm

Start of Test at: 0.0 m bgl

Area :
Layer No:
Co ordinates :
704194.548,
732597.159,
57.136

Soil Description: Brown sandy gravelly CLAY (beside the road)

No of Blows	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*
1	0	73	1	21	825			
1	1	172	1	22	850			
1	2	231	1	23	874			
1	3	284	1	24	896			
1	4	308	1	25	903			
1	5	345	1	26	929			
1	6	384	1	27	948			
1	7	419						
1	8	454						
1	9	480						
1	10	503						
1	11	533						
1	12	562						
1	13	593						
1	14	624						
1	15	655						
1	16	686						
1	17	717						
1	18	741						
1	19	770						
1	20	798						



Start Depth 0.0 m bgl

	** From	to	Penetration	mm / blow
* Penetration range (mm)	211	875	664	28
Blows	3	27	24	

TRRL RN8 Log10 (CBR) = 2.48-1.057*Log10 (mm/blow)

Log10(CBR) = 0.956

CBR = 9.0

Dynamic Cone Penetrometer

IGSL Field Records and Temps (F20)

Contract	SDCC Lands at Clonburris
Client	SDCC
Contract No.	23784

Date: 19/01/2022 **Test No. CBR02**

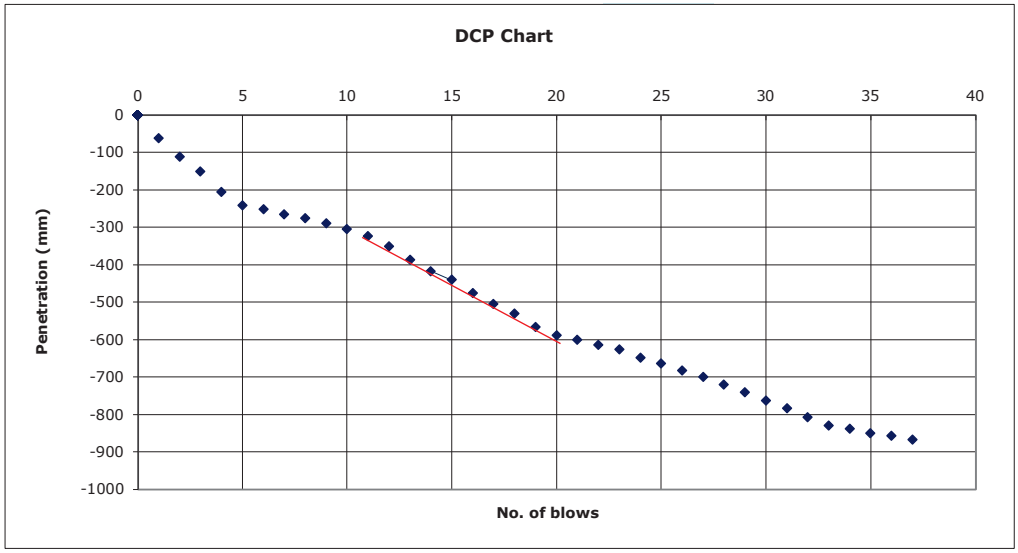
DCP Zero Reading 69 mm

Start of Test at: 0.0 m bgl

Area :
Layer No:
Co ordinates :
704166.746,
732503.381,
57.92

Soil Description: Brown sandy gravelly CLAY (beside the road)

No of Blows	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*
1	0	69	1	21	669			
1	1	130	1	22	683			
1	2	180	1	23	695			
1	3	219	1	24	717			
1	4	274	1	25	733			
1	5	311	1	26	751			
1	6	321	1	27	769			
1	7	334	1	28	790			
1	8	344	1	29	810			
1	9	359	1	30	832			
1	10	373	1	31	853			
1	11	392	1	32	876			
1	12	420	1	33	899			
1	13	456	1	34	908			
1	14	486	1	35	919			
1	15	510	1	36	927			
1	16	544	1	37	936			
1	17	574						
1	18	599						
1	19	636						
1	20	658						



Start Depth 0.0 m bgl

	** From	to	Penetration	mm / blow
* Penetration range (mm)	323	589	266	30
Blows	11	20	9	

TRRL RN8 Log10 (CBR) = 2.48-1.057*Log10 (mm/blow)

Log10(CBR) = 0.926

CBR = 8.4

Dynamic Cone Penetrometer

IGSL Field Records and Temps (F20)

Contract	SDCC Lands at Clonburris
Client	SDCC
Contract No.	23784

Date: 19/01/2022 **Test No. CBR03**

DCP Zero Reading 69 mm

Area :

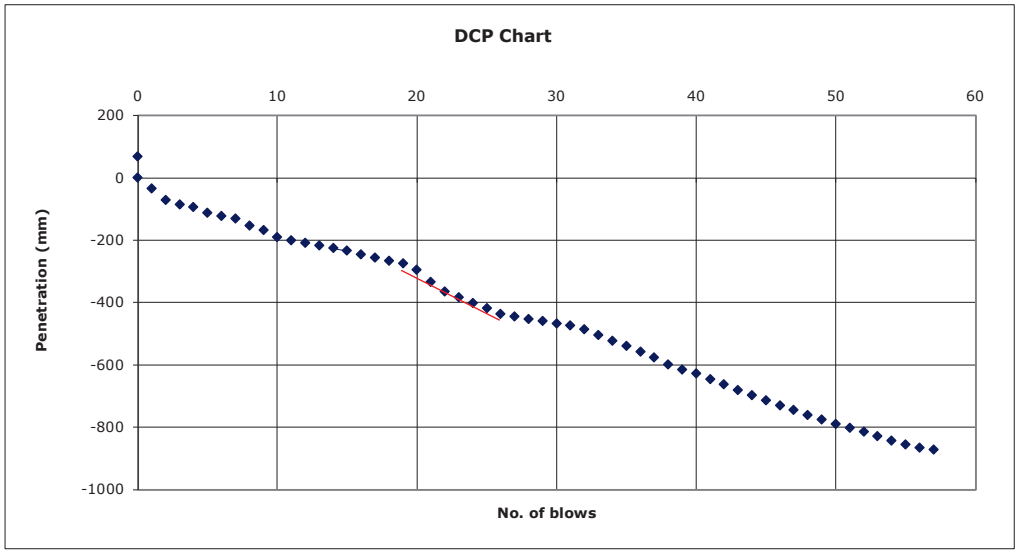
Start of Test at: 0.0 m bgl

Layer No:

Co ordinates :
704029.341,
732562.955,
58.382

Soil Description: Brown sandy gravelly CLAY (beside the road)

No of Blows	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*
1	0	69	1	21	404	1	42	732
1	1	103	1	22	434	1	43	751
1	2	140	1	23	453	1	44	766
1	3	154	1	24	470	1	45	782
1	4	163	1	25	488	1	46	799
1	5	182	1	26	505	1	47	814
1	6	191	1	27	514	1	48	830
1	7	200	1	28	522	1	49	844
1	8	222	1	29	529	1	50	859
1	9	237	1	30	536	1	51	872
1	10	260	1	31	543	1	52	884
1	11	269	1	32	554	1	53	897
1	12	278	1	33	573	1	54	913
1	13	286	1	34	591	1	55	925
1	14	295	1	35	609	1	56	934
1	15	304	1	36	626	1	57	941
1	16	315	1	37	646	1		
1	17	326	1	38	667	1		
1	18	336	1	39	684	1		
1	19	344	1	40	696	1		
1	20	365	1	41	716	1		



Start Depth 0.0 m bgl

	** From	to	Penetration	mm / blow
* Penetration range (mm)	275	436	161	23
Blows	19	26	7	

TRRL RN8 Log10 (CBR) = 2.48-1.057*Log10 (mm/blow)

Log10(CBR) = 1.041

CBR = 11.0

Dynamic Cone Penetrometer

IGSL Field Records and Temps (F20)

Contract	SDCC Lands at Clonburris
Client	SDCC
Contract No.	23784

Date: 19/01/2022 **Test No. CBR04**

DCP Zero Reading 122 mm

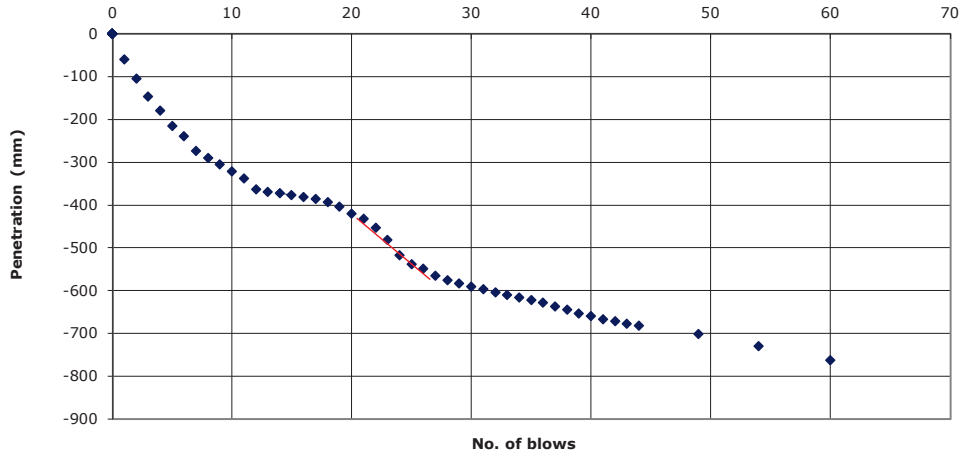
Start of Test at: 0.0 m bgl

Area :
Layer No:
Co ordinates :

Soil Description: Brown sandy gravelly CLAY (beside the road)

No of Blows	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*	*No of Blows*	*Total Blows*	*Reading mm*
1	0	122	1	21	555	1	42	794
1	1	182	1	22	575	1	43	800
1	2	227	1	23	603	1	44	804
1	3	268	1	24	639	5	49	823
1	4	302	1	25	661	5	54	852
1	5	337	1	26	671	5	60	885
1	6	361	1	27	687			
1	7	396	1	28	698			
1	8	412	1	29	706			
1	9	427	1	30	713			
1	10	444	1	31	719			
1	11	460	1	32	726			
1	12	486	1	33	733			
1	13	491	1	34	739			
1	14	494	1	35	744			
1	15	499	1	36	751			
1	16	503	1	37	759			
1	17	508	1	38	766			
1	18	515	1	39	775			
1	19	526	1	40	782			
1	20	543	1	41	789			

DCP Chart



Start Depth 0.0 m bgl

	** From	to	Penetration	mm / blow
* Penetration range (mm)	433	565	132	22
Blows	21	27	6	

TRRL RN8 Log10 (CBR) = 2.48-1.057*Log10 (mm/blow)

Log10(CBR) = 1.061

CBR = 11.5

Appendix 7

Geotechnical Laboratory Testing

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. **R131688** Contract No. 23784 Contract Name: Clonburris Housing Development

Customer SDCC / Aecom

Samples Received: 21/02/22 Date Tested: 24/02/22

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
WS01	AA162371	0.4	A22/0818	B	13	37	19	18	35	WS	4.4	C I	Grey sandy gravelly CLAY
WS02	AA162353	1.1	A22/0819	B	20	33	16	17	79	WS	4.4	C L	Grey/brown sandy gravelly CLAY
WS03	AA162155	1.4	A22/0820	B	14	33	17	16	68	WS	4.4	C L	Brown sandy gravelly CLAY
WS04	AA152193	1.0	A22/0821	B	15	34	16	18	53	WS	4.4	C L	Brown sandy gravelly CLAY
WS05	AA162153	0.8	A22/0822	B	14	25	15	10	54	WS	4.4	C L	Grey/brown slightly sandy, gravelly, CLAY
WS06	AA162162	1.0	A22/0823	B	18	40	19	21	36	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS09	AA152397	1.3	A22/0825	B	15	39	18	21	41	WS	4.4	C I	Grey slightly sandy, gravelly, CLAY
WS10	AA162351	1.3	A22/0826	B	17	32	18	14	53	WS	4.4	C L	Grey/brown sandy gravelly CLAY
WS11	AA162359	1.7	A22/0827	B	15	38	20	18	25	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS12	AA152399	0.8	A22/0828	B	16	34	17	17	52	WS	4.4	C L	Brown sandy gravelly CLAY
WS13	AA152190	1.0	A22/0829	B	19	38	21	17	91	WS	4.4	C I	Brown slightly sandy, slightly gravelly, CLAY
WS14	AA162164	0.9	A22/0830	B	15	29	16	13	35	WS	4.4	C L	Grey/brown sandy gravelly CLAY
WS15	AA162368	1.1	A22/0831	B	32	43	23	20	68	WS	4.4	C I	Brown sandy gravelly CLAY
WS16	AA152168	1.0	A22/0832	B	17	33	17	16	68	WS	4.4	C L	Brown sandy gravelly CLAY
WS17	AA152183	1.3	A22/0833	B	22	41	20	21	49	WS	4.4	C I	Grey slightly sandy, slightly gravelly, CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.

IGSL Ltd Materials Laboratory

Persons authorized to approve reports
H Byrne (Laboratory Manager)

Approved by	Date	Page
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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. **R131689** Contract No. 23784 Contract Name: Clonburris Housing Development

Customer SDCC / Aecom

Samples Received: 21/02/22 Date Tested: 24/02/22

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
WS18	AA162170	1.3	A22/0834	B	25	36	19	17	43	WS	4.4	C I	Grey/brown slightly sandy, slightly gravelly, CLAY
WS19	AA152179	1.6	A22/0835	B	17	50	24	26	70	WS	4.4	C I	Brown slightly sandy, gravelly, CLAY
WS20	AA152380	1.2	A22/0836	B	29	41	20	31	56	WS	4.4	C I	Brown sandy gravelly CLAY
WS21	AA152379	1.5	A22/0838	B	17	39	17	22	32	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS22	AA162382	1.0	A22/0839	B	20	35	19	16	91	WS	4.4	C L	Brown sandy gravelly CLAY
WS23	AA162377	0.8	A22/0840	B	20	37	19	18	67	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS24	AA152384	1.1	A22/0841	B	27	43	22	21	98	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS25	AA152185	1.2	A22/0842	B	19	31	17	14	72	WS	4.4	C L	Brown sandy gravelly CLAY
WS25	AA152186	1.7	A22/0843	B	27	38	19	19	58	WS	4.4	C I	Grey sandy gravelly CLAY
WS26	AA152173	0.9	A22/0844	B	35	61	31	30	50	WS	4.4	C H	Brown sandy gravelly CLAY
WS26	AA152175	1.5	A22/0845	B	22	34	17	17	23	WS	4.4	C L	Grey slightly sandy, gravelly, CLAY
WS27	AA132830	0.9	A22/0846	B	17	38	19	19	49	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS28	AA162356	0.3	A22/0847	B	27	43	19	24	47	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS29	AA152165	0.7	A22/0848	B	18	32	17	15	49	WS	4.4	C L	Brown sandy gravelly CLAY
WS29	AA1521660	1.6	A22/0849	B	23	51	22	29	46	WS	4.4	C H	Brown slightly sandy, gravelly, CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.
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Persons authorized to approve reports
H Byrne (Laboratory Manager)

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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. **R131690** Contract No. 23784 Contract Name: Clonburris Housing Development

Customer SDCC / Aecom

Samples Received: 21/02/22 Date Tested: 24/02/22

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
WS30	AA152393	0.2	A22/0850	B	19	36	16	20	67	WS	4.4	C I	Brown sandy gravelly CLAY
WS31	AA152180	1.5	A22/0851	B	16	48	24	24	60	WS	4.4	C I	Brown sandy gravelly CLAY
WS32	AA152390	0.7	A22/0852	B	10	40	20	20	34	WS	4.4	C I	Brown slightly sandy, gravelly, CLAY
WS33	AA152171	1.4	A22/0853	B	15	46	20	26	70	WS	4.4	C I	Brown sandy gravelly CLAY
WS33	AA152172	2.4	A22/0854	B	20	49	22	27	67	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS34	AA162175	1.3	A22/0855	B	15	36	19	17	44	WS	4.4	C I	Grey sandy gravely CLAY
WS35	AA132832	1.1	A22/0856	B	23	40	22	18	52	WS	4.4	C I	Grey/brown slightly sandy, gravelly, CLAY
WS36	AA152386	0.4	A22/0857	B	18	39	19	20	47	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS36	AA152388	2.0	A22/0858	B	18	35	18	17	37	WS	4.4	C L	Grey slightly sandy, gravelly, CLAY
WS37	AA132822	1.6	A22/0859	B	12	37	19	18	35	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS38	AA162373	0.6	A22/0860	B	20	65	35	30	65	WS	4.4	M H	Brown sandy gravelly SILT
WS40	AA132817	0.9	A22/0861	B	20	40	18	22	75	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS41	AA162389	1.0	A22/0863	B	20	35	17	18	74	WS	4.4	C L	Brown sandy gravelly CLAY
WS41	AA162391	1.6	A22/0864	B	13	39	20	19	36	WS	4.4	C I	Grey sandy gravely CLAY
WS42	AA132834	0.6	A22/0875	B	16	34	19	15	56	WS	4.4	C L	Grey slightly sandy, gravelly, CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
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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. **R131691** Contract No. 23784 Contract Name: Clonburris Housing Development

Customer SDCC / Aecom

Samples Received: 21/02/22 Date Tested: 24/02/22

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
WS43	AA132828	0.6	A22/0867	B	17	42	21	21	66	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS44	AA132837	0.6	A22/0868	B	10	40	15	25	48	WS	4.4	C I	Grey slightly sandy, gravelly, CLAY with many cobbles
WS45	AA162393	0.6	A22/0869	B	17	30	14	16	59	WS	4.4	C L	Brown sandy gravelly CLAY
WS46	AA162365	0.8	A22/0870	B	20	33	19	14	60	WS	4.4	C L	Brown sandy gravelly CLAY
WS47	AA162166	0.9	A22/0851	B	16	26	40	20	20	44	4.4	C L	Brown sandy gravelly CLAY
WS47	AA162167	2.0	A22/0872	B	24	33	16	17	41	WS	4.4	C L	Grey slightly sandy, slightly gravelly, CLAY
WS48	AA162157	0.7	A22/0873	B	28	48	20	28	90	WS	4.4	C I	Brown sandy gravelly CLAY
WS49	AA162369	0.3	A22/0874	B	23	47	21	26	48	WS	4.4	C I	Brown sandy gravelly CLAY
WS50	AA152196	0.5	A22/0875	B	21	40	18	22	66	WS	4.4	C I	Brown sandy gravely CLAY
WS51	AA152200	0.7	A22/0876	B	22	36	17	19	56	WS	4.4	C I	Brown slightly sandy, slightly gravelly, CLAY
WS53	AA152188	0.8	A22/0877	B	19	37	19	18	37	WS	4.4	C I	Brown sandy gravelly CLAY
WS55	AA152198	0.5	A22/0878	B	14	47	24	23	50	WS	4.4	C I	Brown slightly sandy, gravelly, CLAY
WS58	AA152376	1.3	A22/0879	B	22	43	17	26	93	WS	4.4	C I	Grey/brown sandy gravelly CLAY
WS58	AA152377	2.1	A22/0880	B	18	36	18	18	39	WS	4.4	C I	Grey sandy gravelly CLAY
WS59	AA132824	0.6	A22/0881	B	18	34	16	18	34	WS	4.4	C L	Grey/brown sandy gravelly CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.

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Persons authorized to approve reports
H Byrne (Laboratory Manager)

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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. **R131692** Contract No. 23784 Contract Name: Clonburris Housing Development

Customer SDCC / Aecom

Samples Received: 21/02/22 Date Tested: 24/02/22

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
WS59	AA132836	2.3	A22/0882	B	12	39	18	21	57	WS	4.4	C I	Grey slightly sandy, gravelly, CLAY
WS60	AA132820	1.0	A22//0883	B	19	39	21	18	59	WS	4.4	C I	Grey/brown sandy gravelly CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.

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Persons authorized to approve reports
H Byrne (Laboratory Manager)

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TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

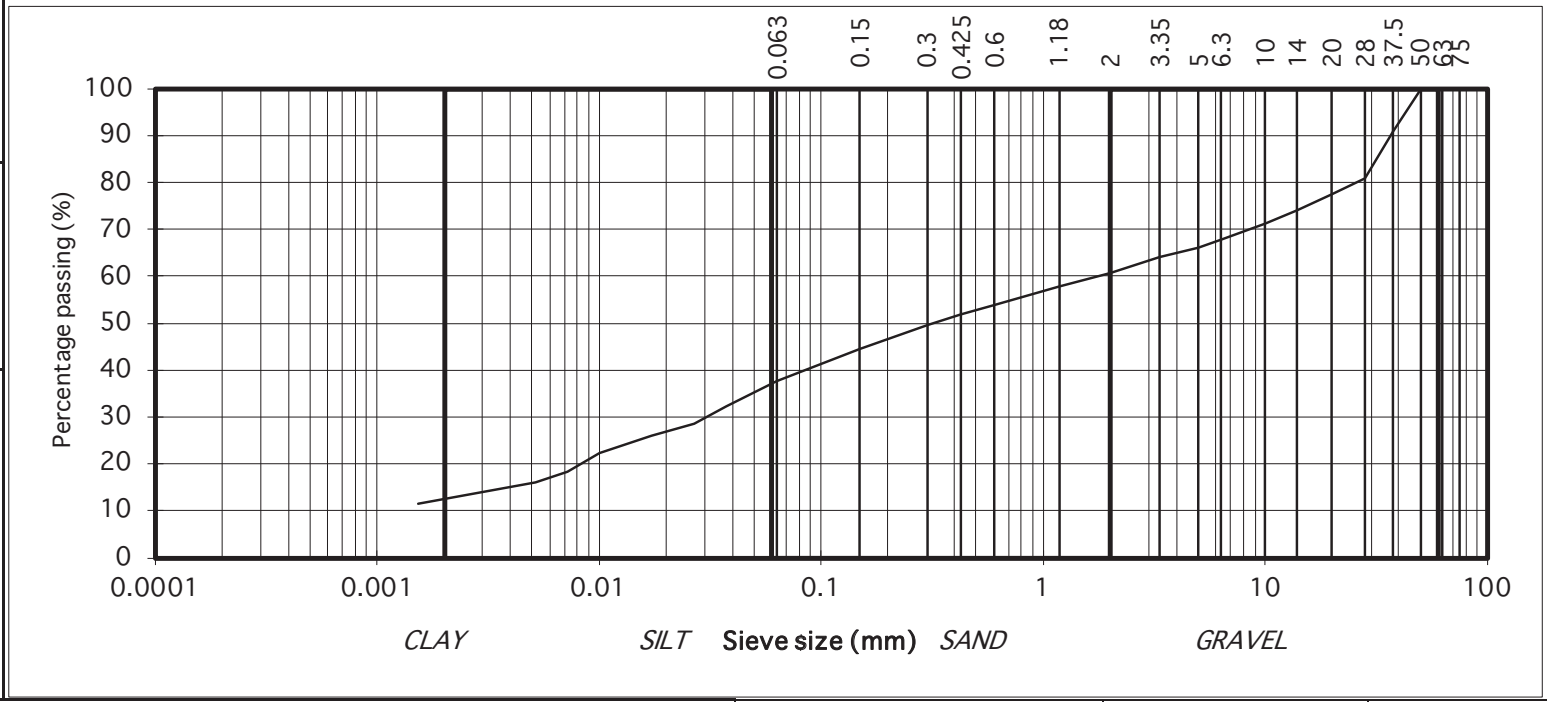
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	91	
28	81	
20	77	
14	74	
10	71	
6.3	68	
5	66	
3.35	64	
2	61	
1.18	58	SAND
0.6	54	
0.425	52	
0.3	49	
0.15	44	
0.063	38	SILT/CLAY
0.037	32	
0.027	29	
0.017	26	
0.010	22	
0.007	18	
0.005	16	
0.002	12	

Contract No.	23784	Report No.	R131897	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS05			
Sample No.	AA162153	Lab. Sample No.		A22/0822
Sample Type:	B			
Depth (m)	0.80	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		24/02/2022
Description:	Grey/brown slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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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)

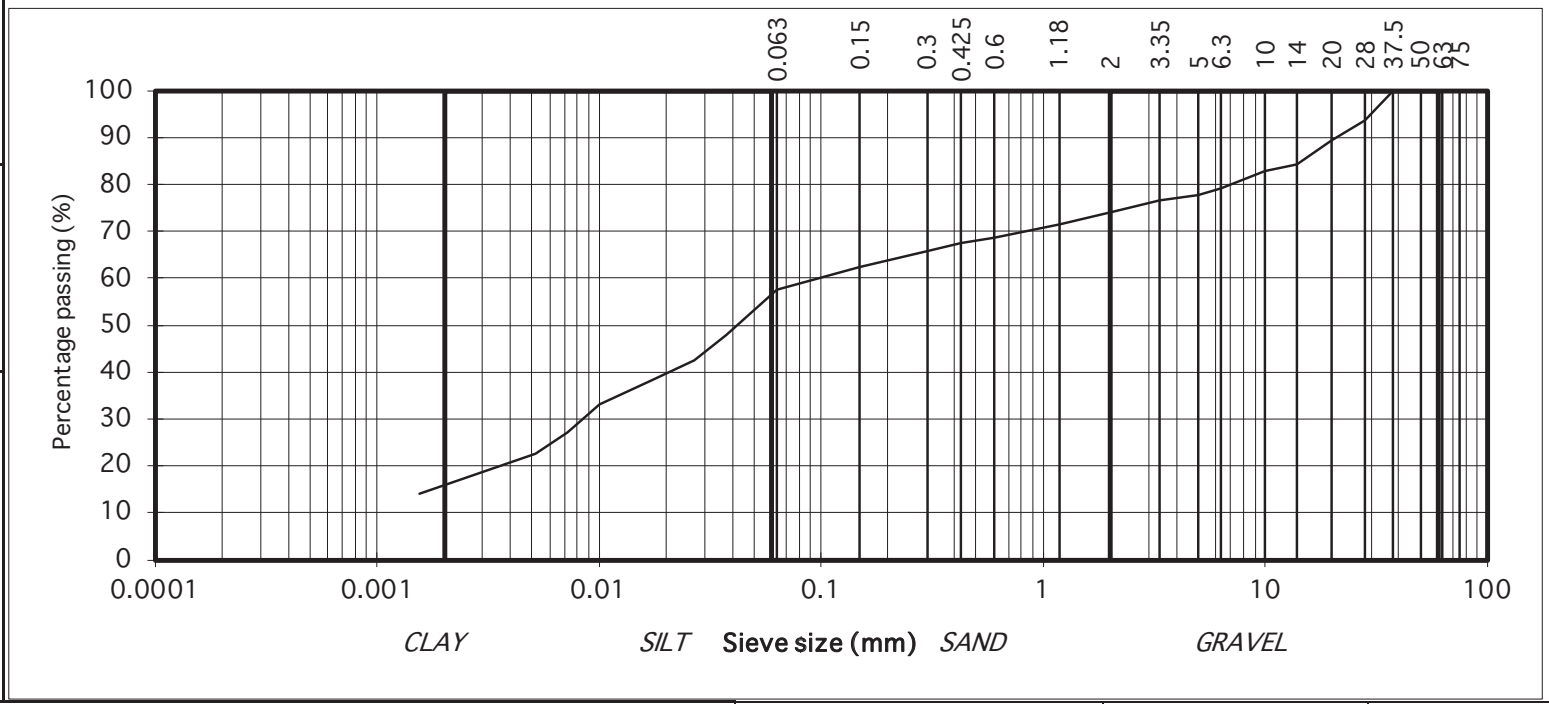
ISO 17025 INAB ACCREDITED TESTING
DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	94	
20	90	
14	84	
10	83	
6.3	79	
5	78	
3.35	77	
2	74	
1.18	72	SAND
0.6	69	
0.425	67	
0.3	66	
0.15	62	
0.063	58	SILT/CLAY
0.037	48	
0.027	42	
0.017	38	
0.010	33	
0.007	27	
0.005	23	
0.002	14	

Contract No.	23784	Report No.	R131946
Contract Name:	Clonburris Housing Development		
BH/TP :	WS07		
Sample No.	AA162160	Lab. Sample No.	A22/0824
Sample Type:	B		
Depth (m)	0.40	Customer:	Aecom / SDCC
Date Received	21/02/2022	Date Testing started	24/02/2022
Description:	Grey/brown slightly sandy, slightly gravelly, SILT/CLAY		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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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)

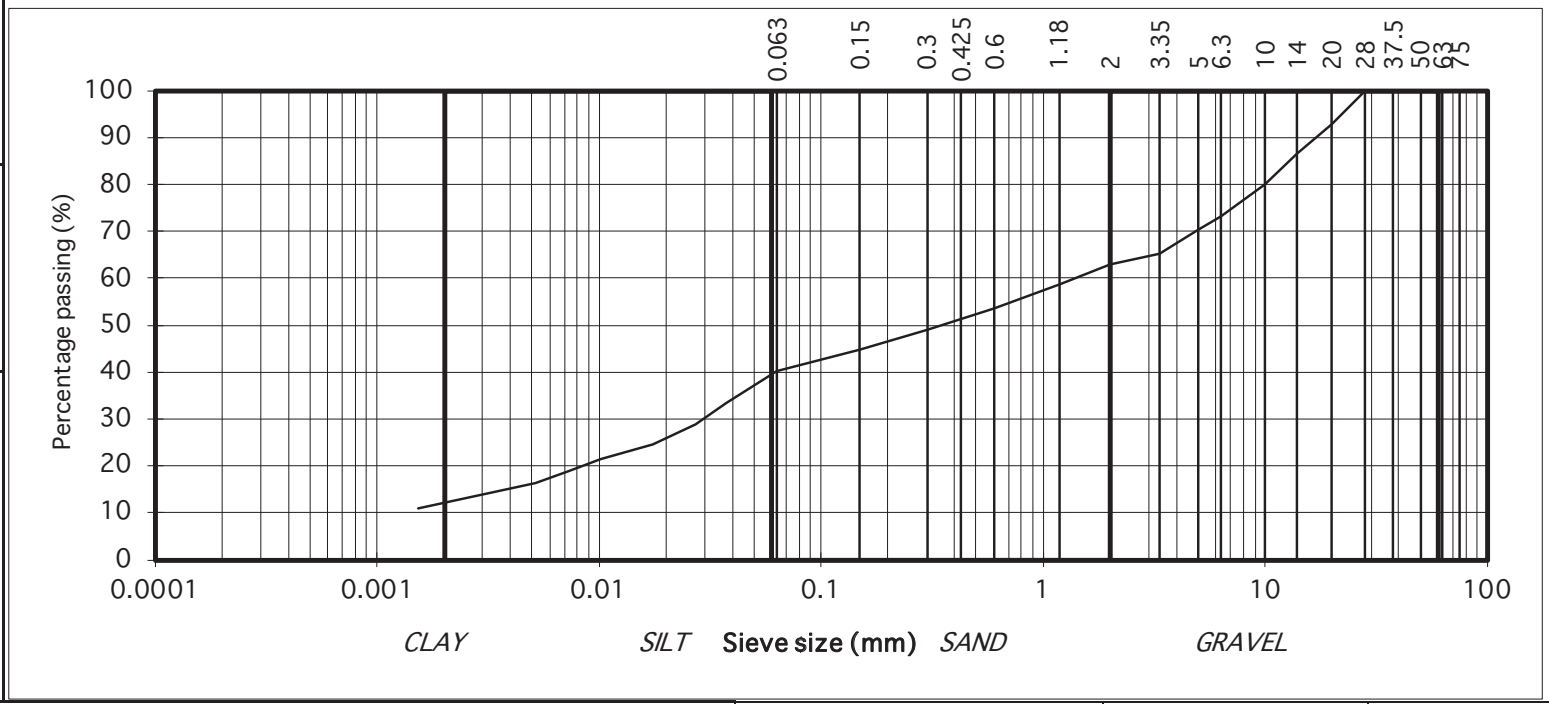
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	93	
14	87	
10	80	
6.3	73	
5	70	
3.35	65	
2	63	
1.18	59	SAND
0.6	54	
0.425	51	
0.3	49	
0.15	45	
0.063	40	SILT/CLAY
0.038	33	
0.027	29	
0.017	24	
0.010	21	
0.007	19	
0.005	16	
0.002	11	

Contract No.	23784	Report No.	R131870	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS09			
Sample No.	AA152397	Lab. Sample No.		A22/0825
Sample Type:	B			
Depth (m)	1.30	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		21/02/2022
Description:	Grey slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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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)

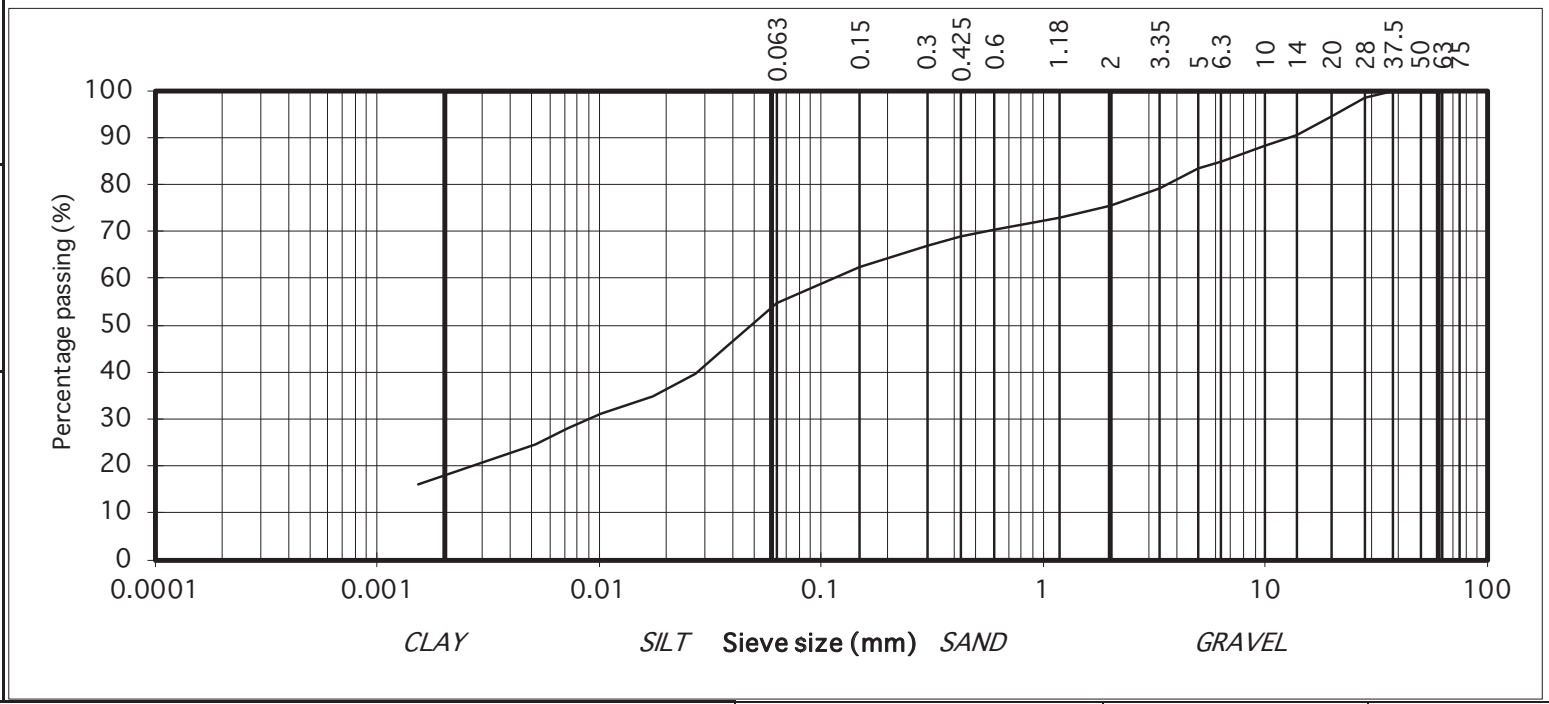
ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	98	
20	94	
14	91	
10	88	
6.3	85	
5	84	
3.35	79	
2	76	
1.18	73	SAND
0.6	70	
0.425	69	
0.3	67	
0.15	62	
0.063	55	SILT/CLAY
0.038	46	
0.027	40	
0.017	35	
0.010	31	
0.007	28	
0.005	25	
0.002	16	

Contract No.	23784	Report No.	R131956	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS13			
Sample No.	AA152190	Lab. Sample No.		A22/0829
Sample Type:	B			
Depth (m)	1.00	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		28/02/2022
Description:	Brown slightly sandy, slightly gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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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)

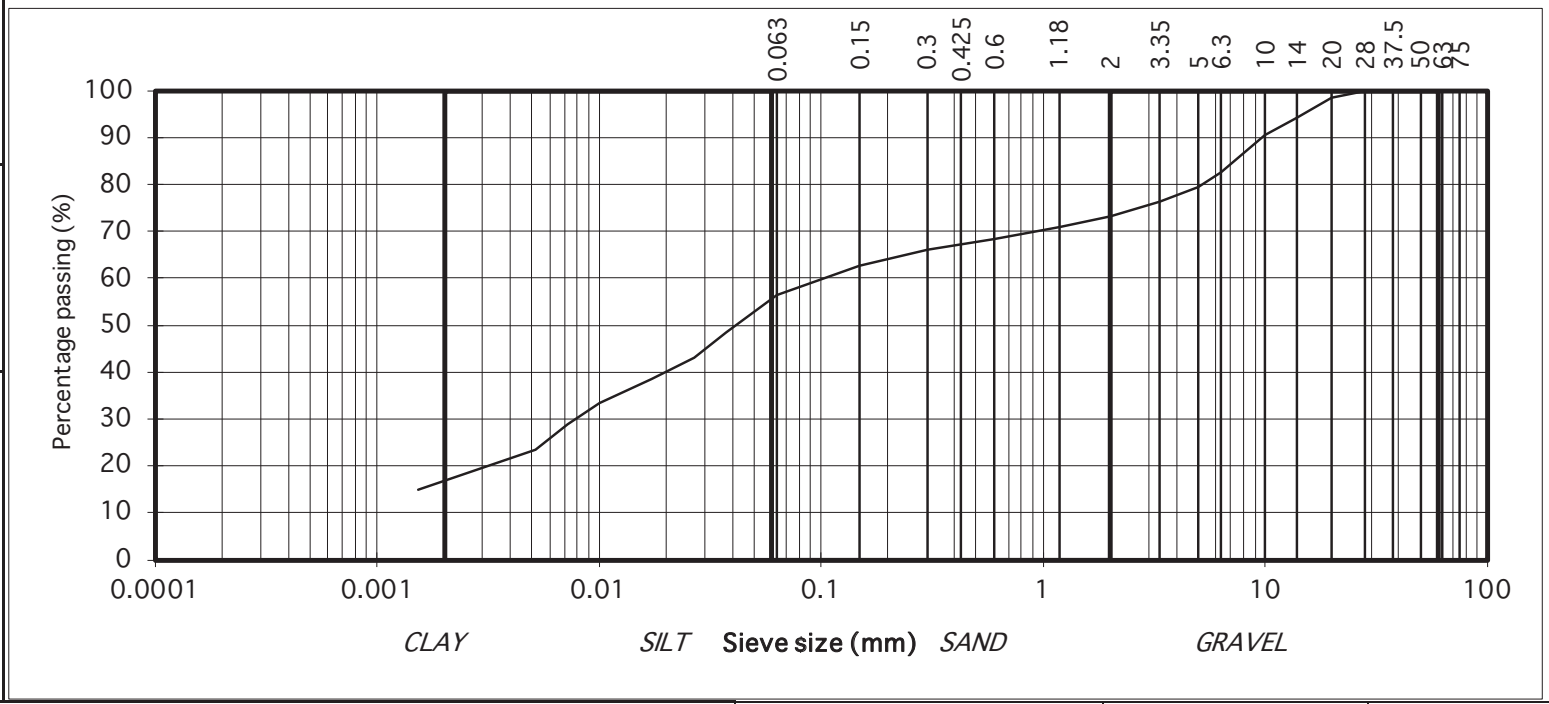
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	99	
14	94	
10	91	
6.3	83	
5	80	
3.35	76	
2	73	
1.18	71	SAND
0.6	68	
0.425	67	
0.3	66	
0.15	63	
0.063	56	SILT/CLAY
0.037	48	
0.027	43	
0.017	38	
0.010	33	
0.007	29	
0.005	23	
0.002	15	

Contract No.	23784	Report No.	R131947	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS17			
Sample No.	AA152183	Lab. Sample No.		A22/0833
Sample Type:	B			
Depth (m)	1.30	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		24/02/2022
Description:	Grey slightly sandy, slightly gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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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)

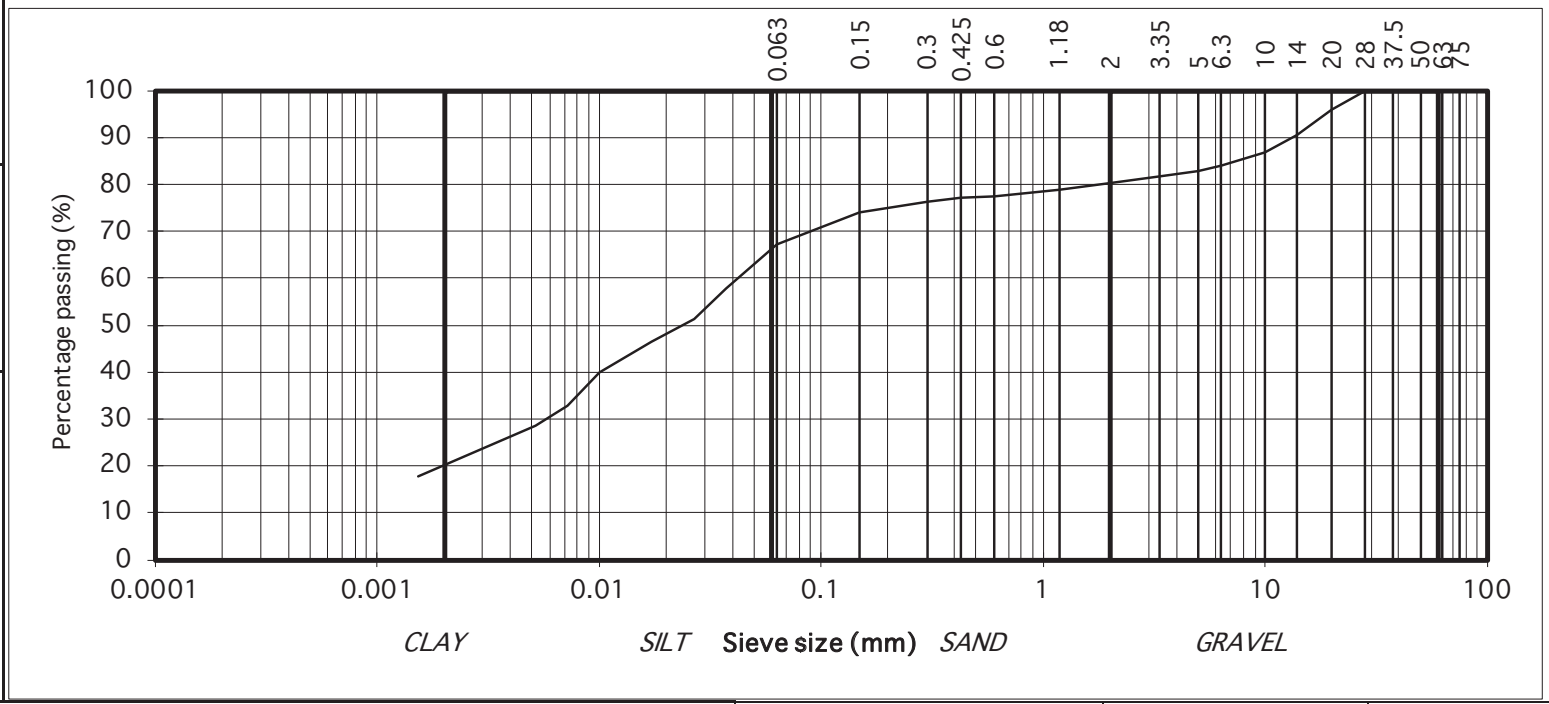
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	96	
14	91	
10	87	
6.3	84	
5	83	
3.35	82	
2	80	
1.18	79	SAND
0.6	78	
0.425	77	
0.3	76	
0.15	74	
0.063	67	SILT/CLAY
0.037	58	
0.027	51	
0.017	46	
0.010	40	
0.007	33	
0.005	28	
0.002	18	

Contract No. 23784 Report No. R131948
Contract Name: Clonburris Housing Development
BH/TP : WS18
Sample No. AA162170 Lab. Sample No. A22/0834
Sample Type: B
Depth (m) 1.30 Customer: Aecom / SDCC
Date Received 21/02/2022 Date Testing started 24/02/2022
Description: Grey/brown slightly sandy, slightly gravelly, CLAY

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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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)

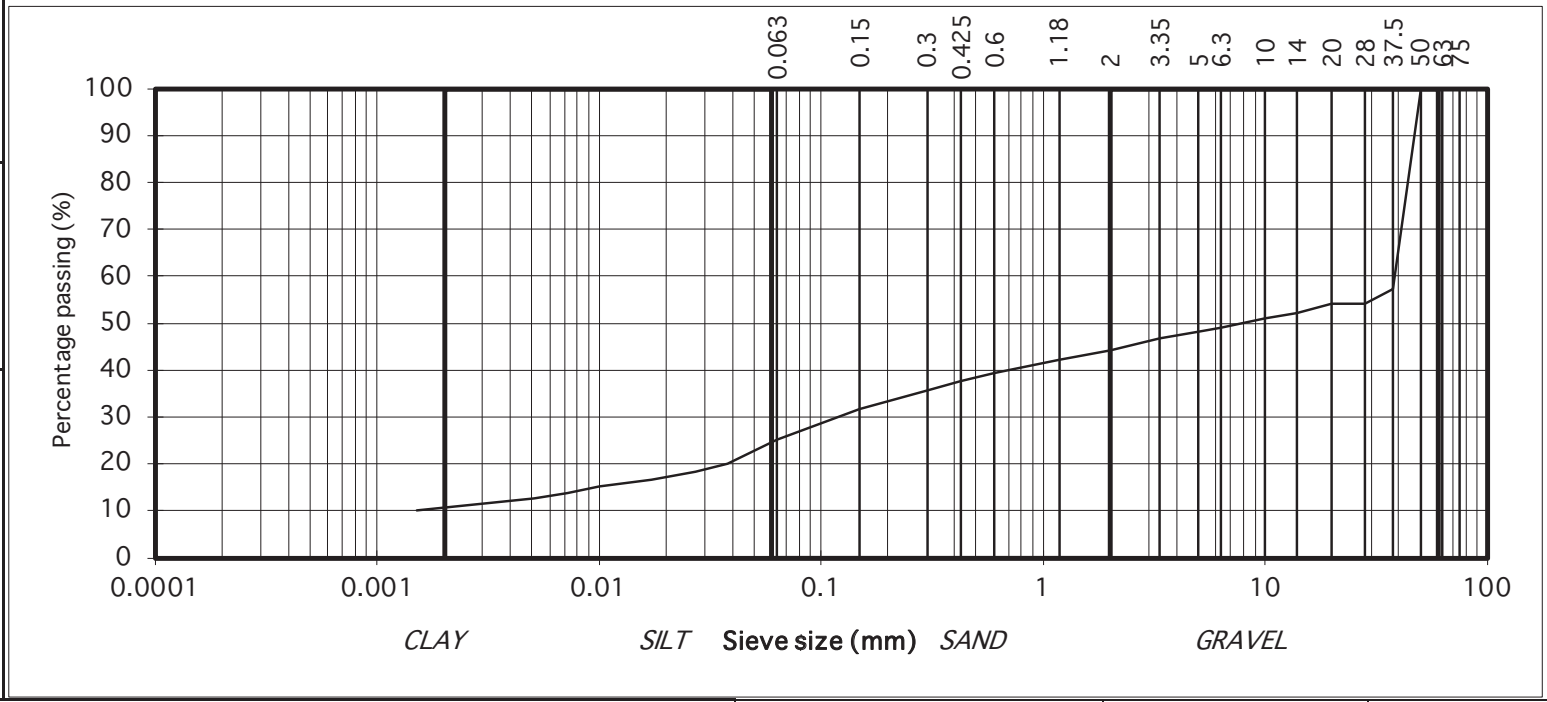
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	57	
28	54	
20	54	
14	52	
10	51	
6.3	49	
5	48	
3.35	47	
2	44	
1.18	42	SAND
0.6	39	
0.425	38	
0.3	36	
0.15	32	
0.063	25	SILT/CLAY
0.038	20	
0.027	18	
0.017	17	
0.010	15	
0.007	14	
0.005	12	
0.002	10	

Contract No.	23784	Report No.	R131949	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS19			
Sample No.	AA152179	Lab. Sample No.		A22/0835
Sample Type:	B			
Depth (m)	1.60	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		28/02/2022
Description:	Brown slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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

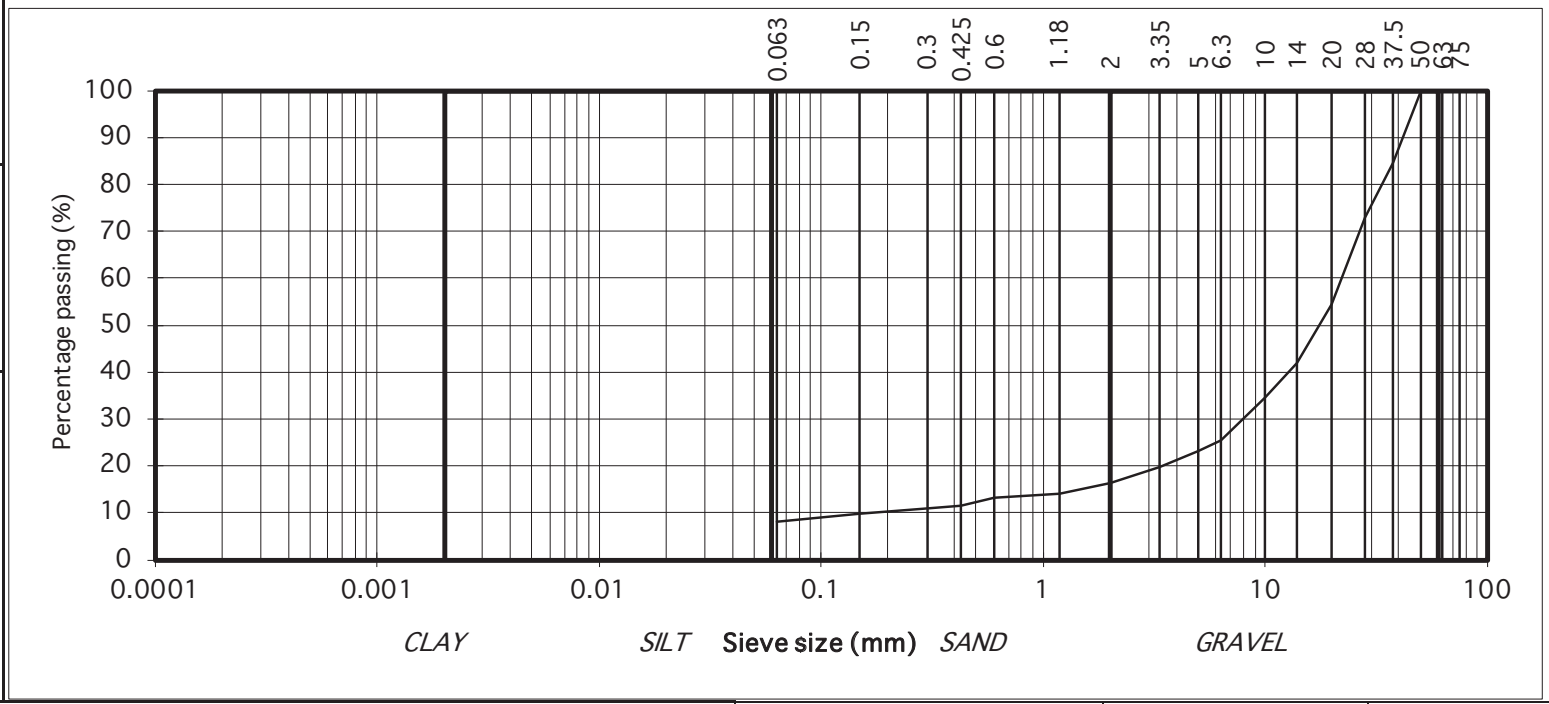
TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	85	
28	73	
20	54	
14	42	
10	34	
6.3	26	
5	23	
3.35	20	
2	16	
1.18	14	SAND
0.6	13	
0.425	12	
0.3	11	
0.15	10	
0.063	8	SILT/CLAY

Contract No. 23784 Report No. R131950
Contract Name: Clonburris Housing Development
BH/TP : WS20
Sample No. AA152381 Lab. Sample No. AA/0837
Sample Type: B
Depth (m) 1.30 Customer: Aecom / SDCC
Date Received 21/02/2022 Date Testing started 28/02/2022
Description: Grey clayey/silty, sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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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)

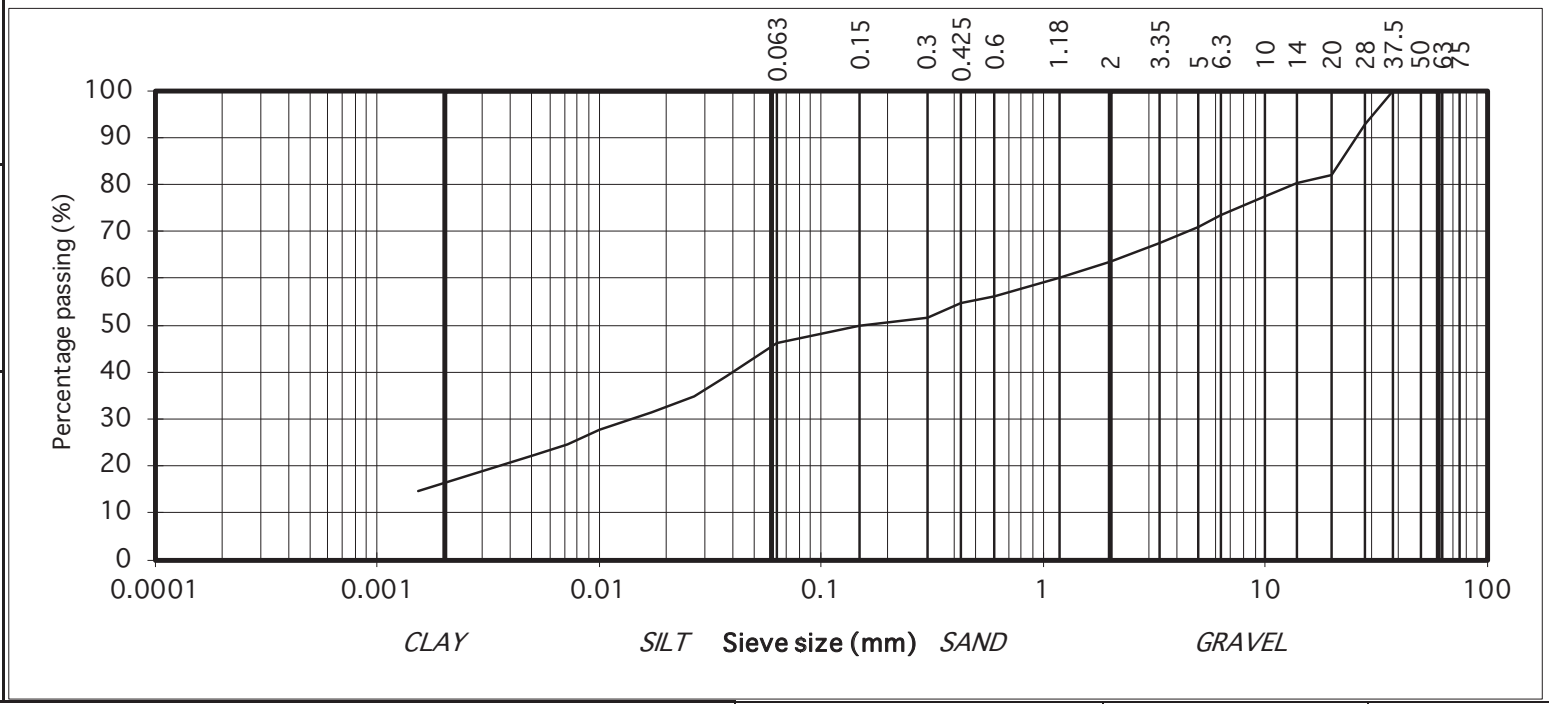
ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	93	
20	82	
14	80	
10	78	
6.3	74	
5	71	
3.35	68	
2	63	
1.18	60	SAND
0.6	56	
0.425	55	
0.3	52	
0.15	50	
0.063	46	SILT/CLAY
0.037	39	
0.027	35	
0.017	31	
0.010	28	
0.007	25	
0.005	22	
0.002	15	

Contract No.	23784	Report No.	R131951	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS26			
Sample No.	AA152175	Lab. Sample No.		A22/0845
Sample Type:	B			
Depth (m)	1.50	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		28/02/2022
Description:	Grey slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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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)

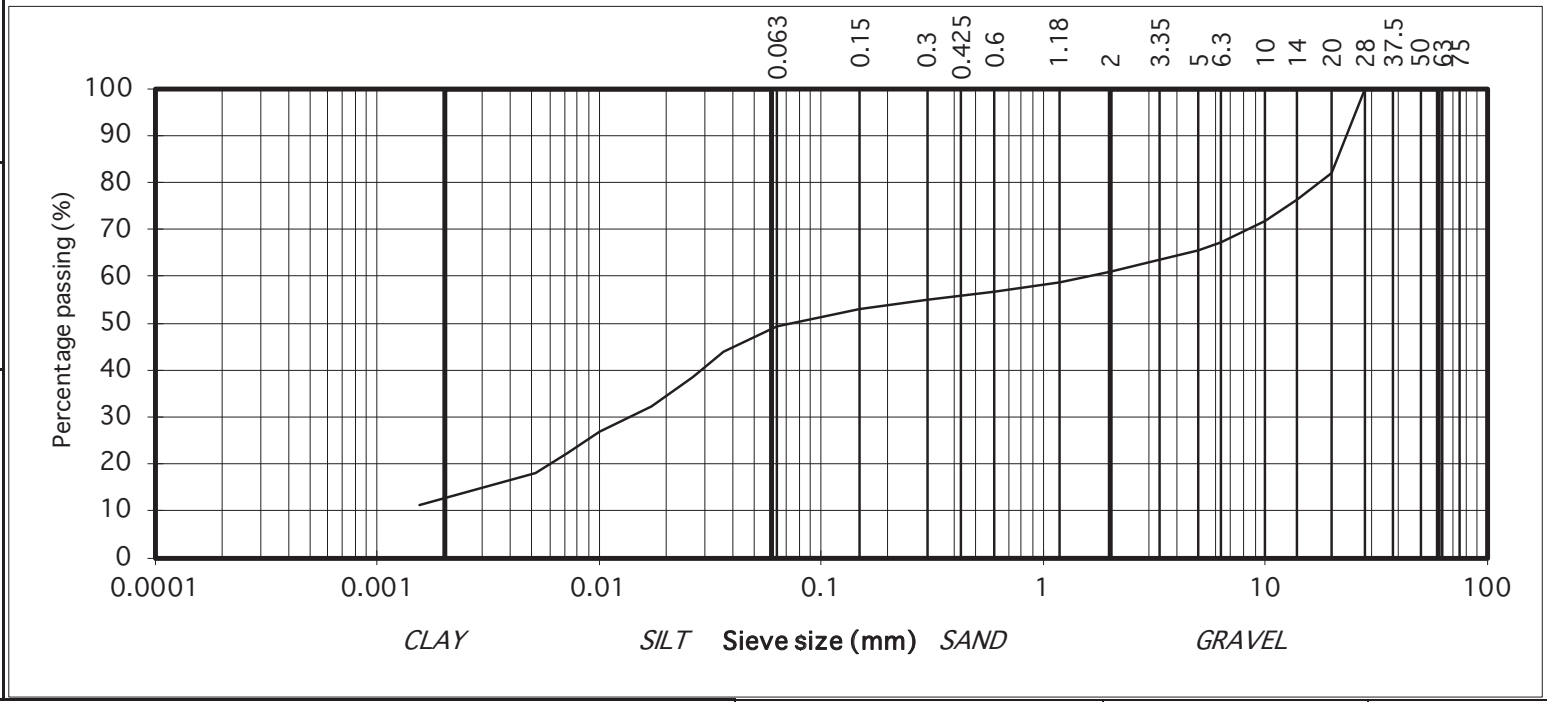
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	82	
14	76	
10	72	
6.3	67	
5	65	
3.35	63	
2	61	
1.18	59	SAND
0.6	57	
0.425	56	
0.3	55	
0.15	53	
0.063	49	SILT/CLAY
0.037	44	
0.026	39	
0.017	32	
0.010	27	
0.007	22	
0.005	18	
0.002	11	

Contract No.	23784	Report No.	R131952	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS29			
Sample No.	AA152166	Lab. Sample No.		A22/0849
Sample Type:	B			
Depth (m)	1.60	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		28/02/2022
Description:	Brown slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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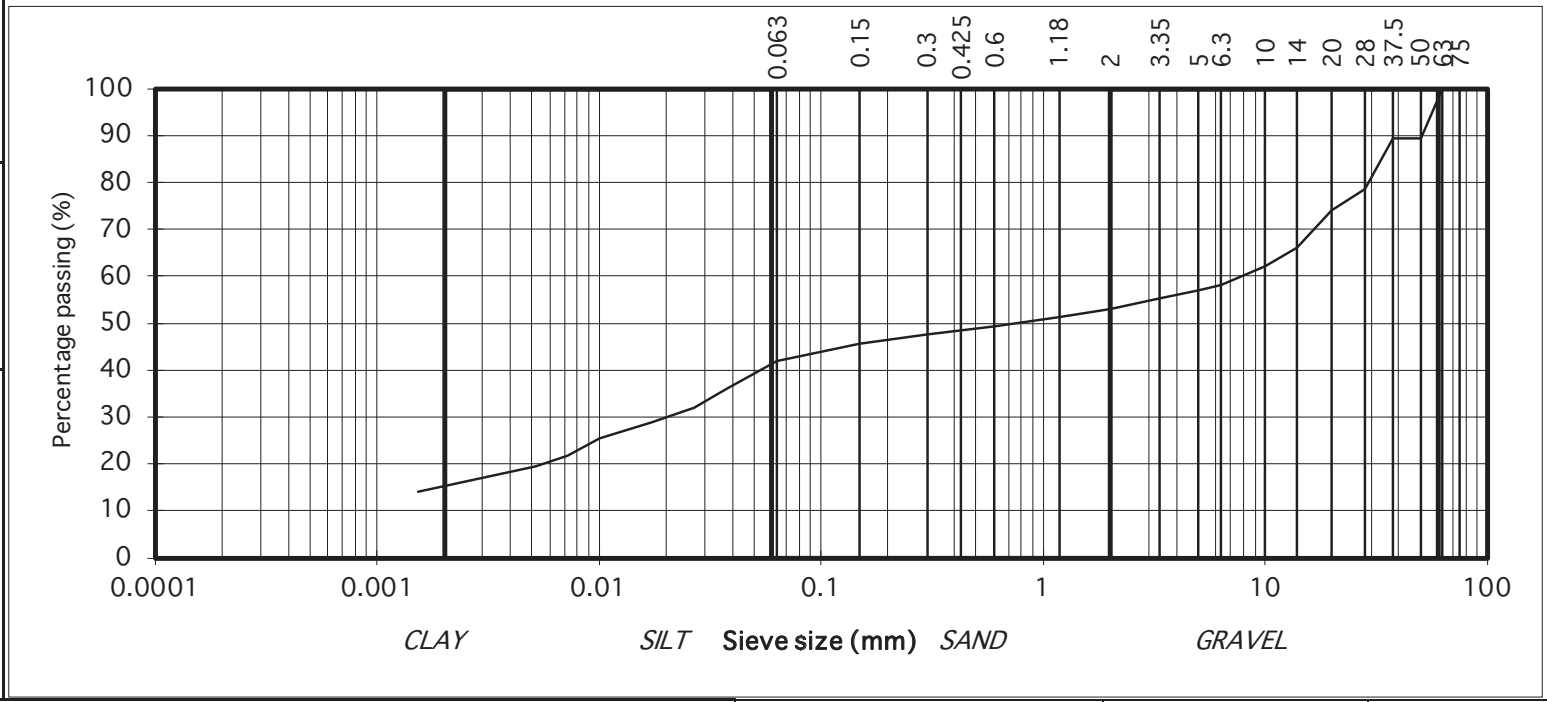
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

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	
75	100	COBBLES
63	100	
50	89	GRAVEL
37.5	89	
28	79	
20	74	
14	66	
10	62	
6.3	58	
5	57	
3.35	55	
2	53	
1.18	51	SAND
0.6	49	
0.425	48	
0.3	48	
0.15	46	
0.063	42	SILT/CLAY
0.037	36	
0.027	32	
0.017	29	
0.010	25	
0.007	22	
0.005	20	
0.002	14	

Contract No.	23784	Report No.	R131953
Contract Name:	Clonburris Housing Development		
BH/TP :	WS32		
Sample No.	AA152390	Lab. Sample No.	A22/0852
Sample Type:	B		
Depth (m)	0.70	Customer:	Aecom / SDCC
Date Received	21/02/2022	Date Testing started	28/02/2022
Description:	Brown slightly sandy, gravelly, CLAY		
Remarks	Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.		



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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)

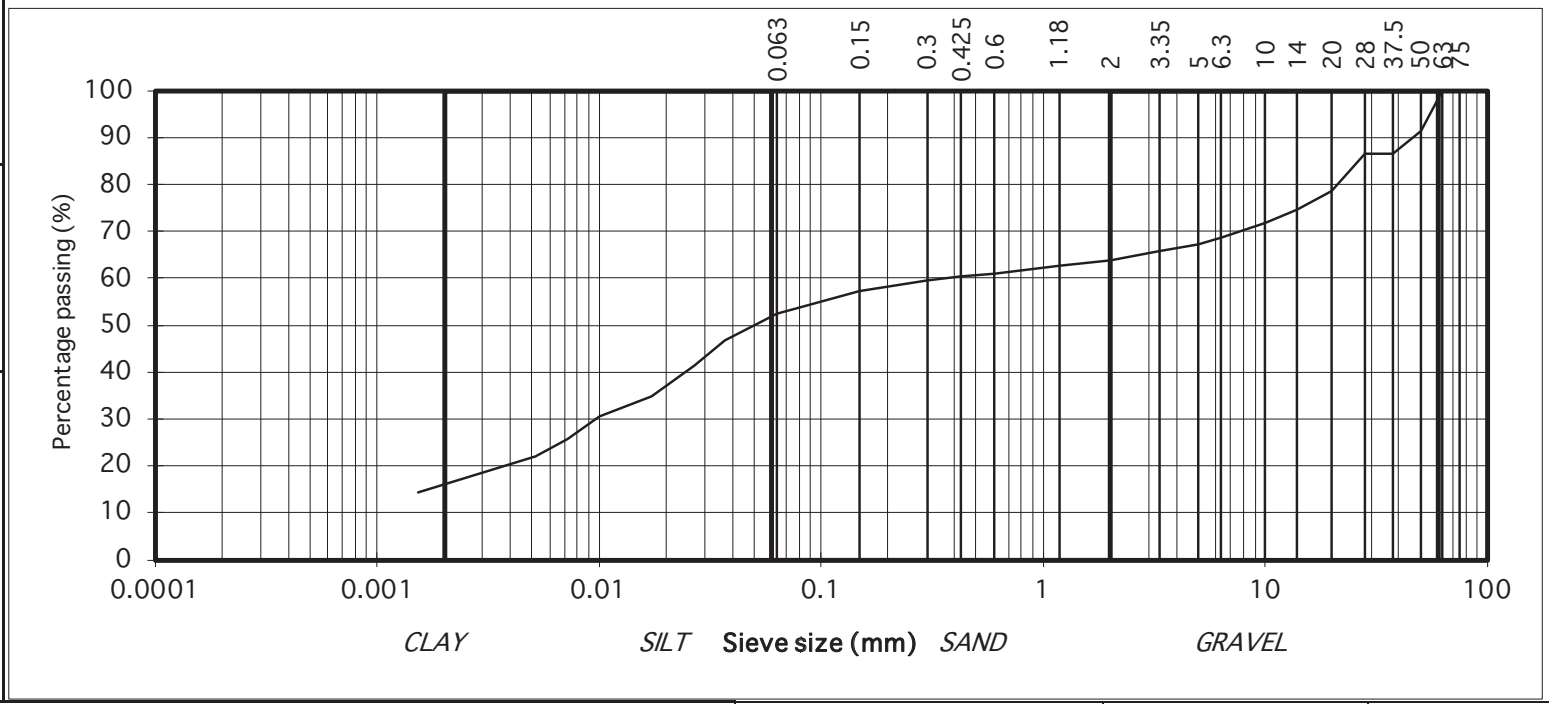
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	91	GRAVEL
37.5	87	
28	87	
20	79	
14	75	
10	72	
6.3	69	
5	67	
3.35	66	
2	64	
1.18	63	SAND
0.6	61	
0.425	60	
0.3	60	
0.15	57	
0.063	53	SILT/CLAY
0.037	47	
0.027	41	
0.017	35	
0.010	31	
0.007	26	
0.005	22	
0.002	14	

Contract No.	23784	Report No.	R131898	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS35			
Sample No.	AA132832	Lab. Sample No.		A22/0856
Sample Type:	B			
Depth (m)	1.10	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		24/02/2022
Description:	Grey/brown slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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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)

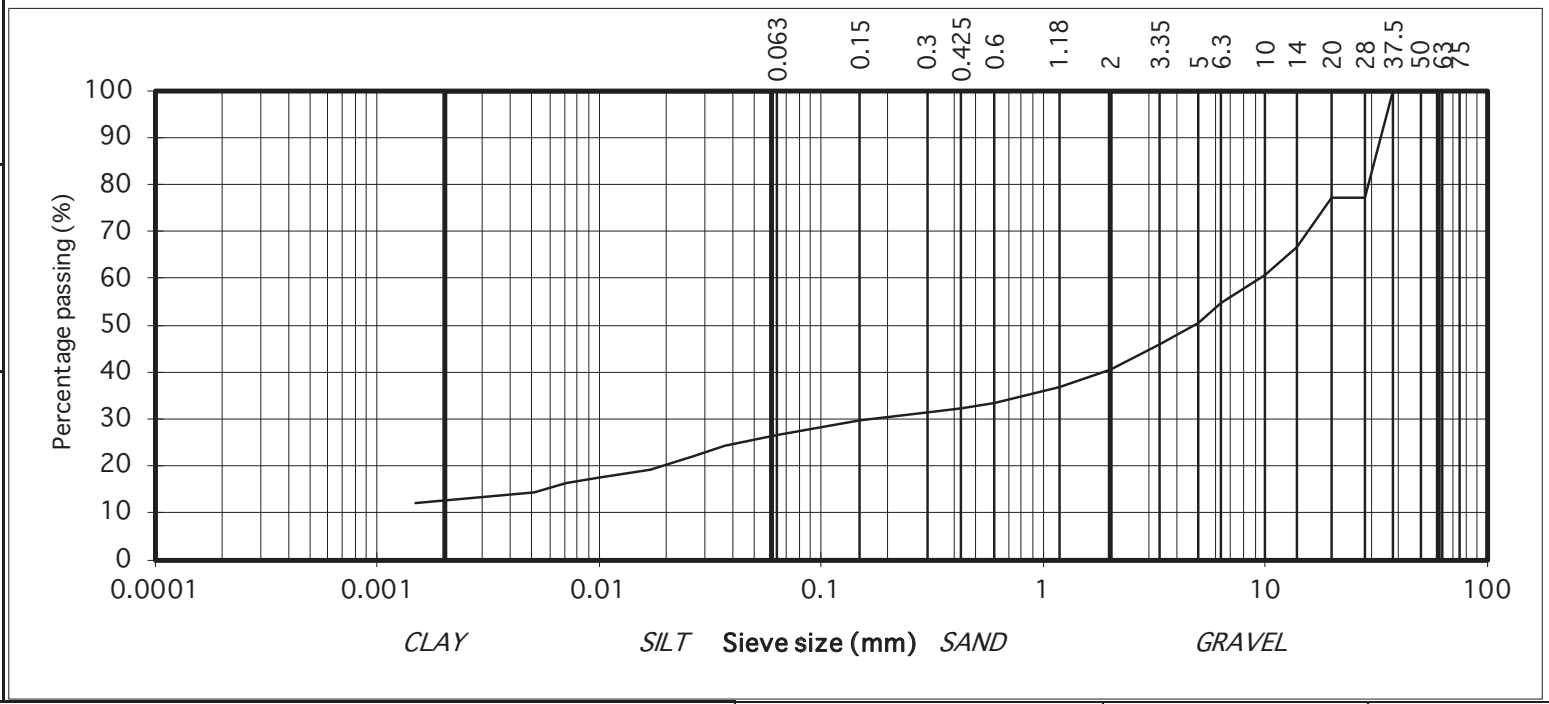
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	77	
20	77	
14	67	
10	61	
6.3	55	
5	51	
3.35	46	
2	40	
1.18	37	SAND
0.6	33	
0.425	32	
0.3	31	
0.15	30	
0.063	27	SILT/CLAY
0.037	24	
0.027	22	
0.017	19	
0.010	18	
0.007	16	
0.005	14	
0.001	12	

Contract No.	23784	Report No.	R131954	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS36			
Sample No.	AA152388	Lab. Sample No.		A22/0858
Sample Type:	B			
Depth (m)	2.00	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		28/02/2022
Description:	Grey slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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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)

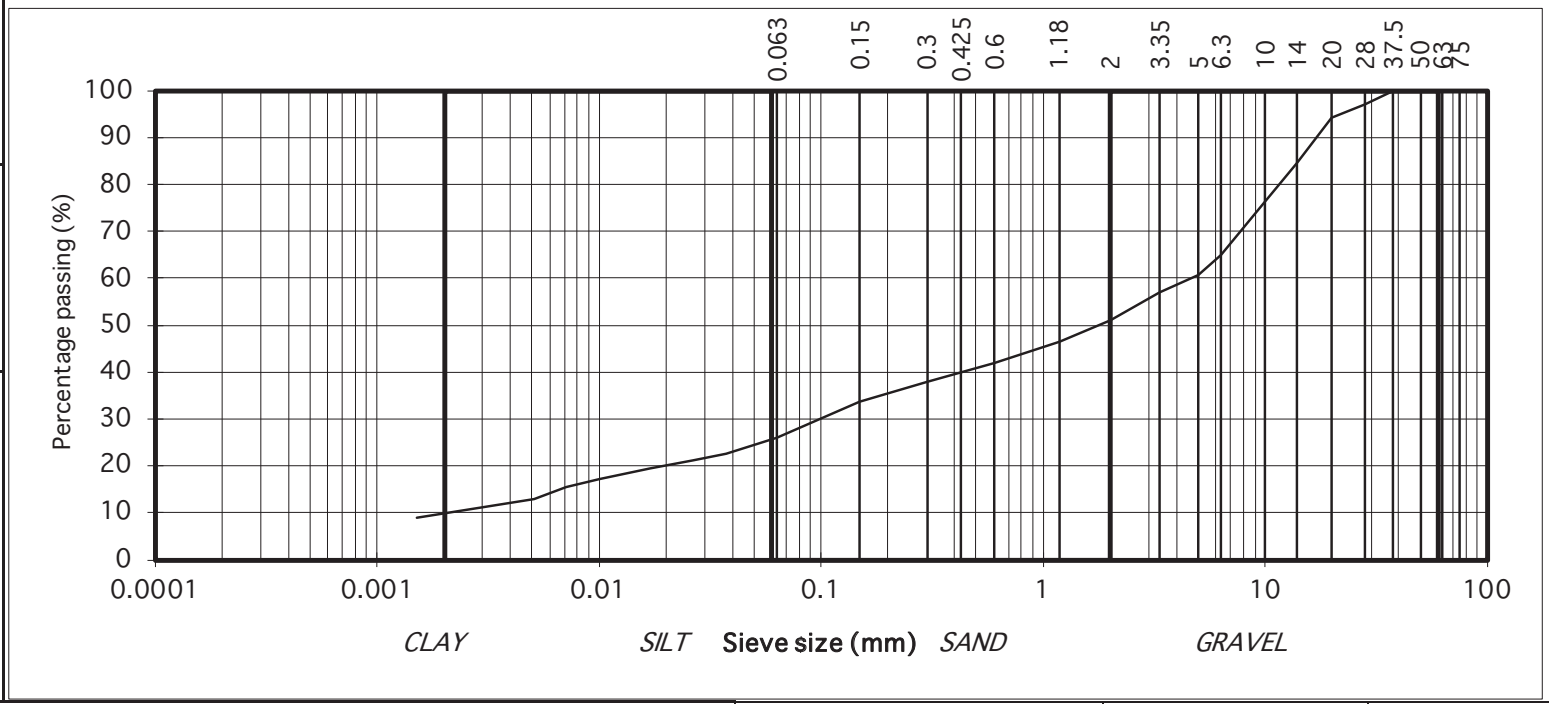
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	97	
20	94	
14	85	
10	76	
6.3	65	
5	61	
3.35	57	
2	51	
1.18	47	SAND
0.6	42	
0.425	40	
0.3	38	
0.15	34	
0.063	26	SILT/CLAY
0.037	23	
0.027	21	
0.017	19	
0.010	17	
0.007	15	
0.005	13	
0.002	9	

Contract No.	23784	Report No.	R131955	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS40			
Sample No.	AA132818	Lab. Sample No.		A22/0862
Sample Type:	B			
Depth (m)	1.70	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		28/02/2022
Description:	Grey slightly sandy, gravelly, SILT/CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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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)

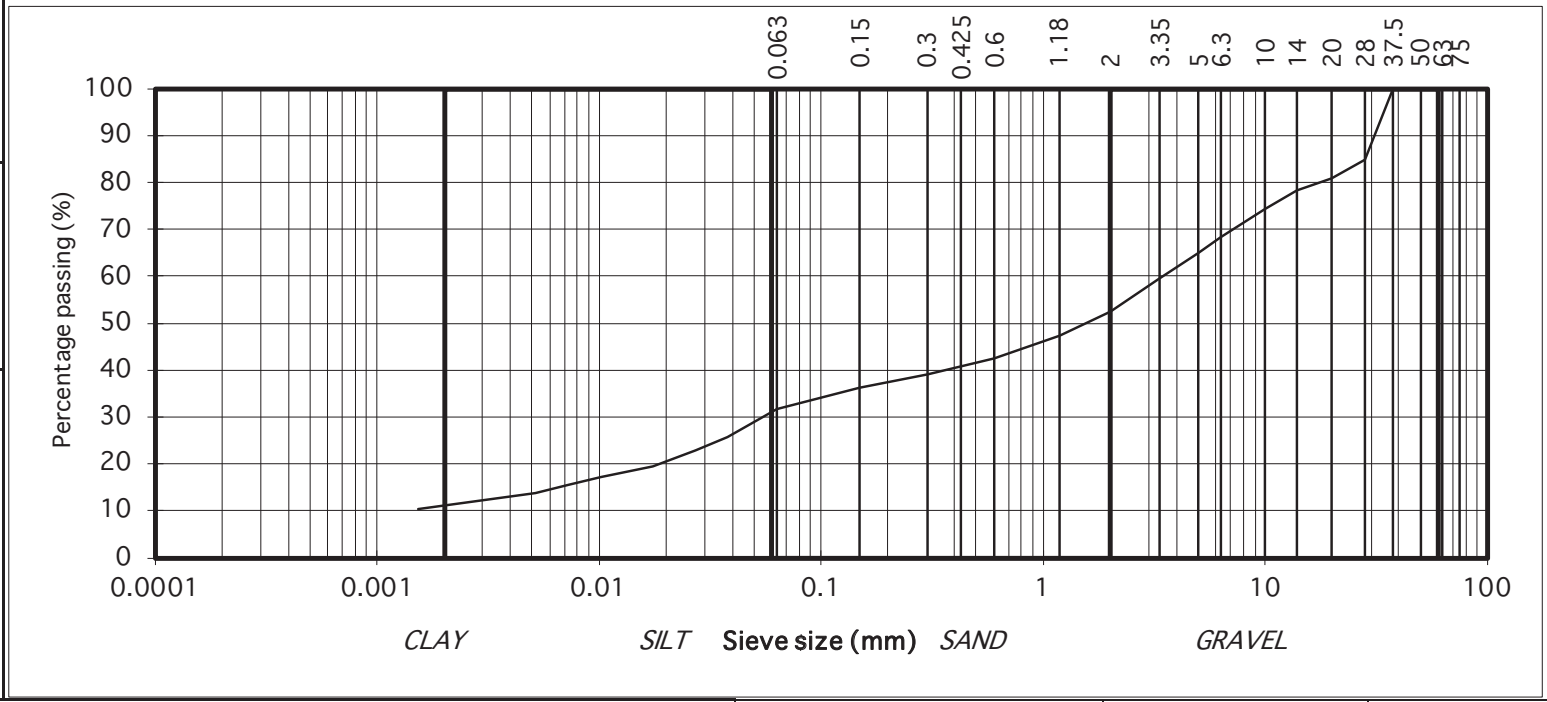
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	85	
20	81	
14	78	
10	75	
6.3	68	
5	65	
3.35	60	
2	53	
1.18	47	SAND
0.6	43	
0.425	41	
0.3	39	
0.15	36	
0.063	32	SILT/CLAY
0.038	26	
0.027	23	
0.017	19	
0.010	17	
0.007	16	
0.005	14	
0.002	10	

Contract No.	23784	Report No.	R131899	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS42			
Sample No.	AA132835	Lab. Sample No.		A22/0866
Sample Type:	B			
Depth (m)	1.80	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		24/02/2022
Description:	Grey slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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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)

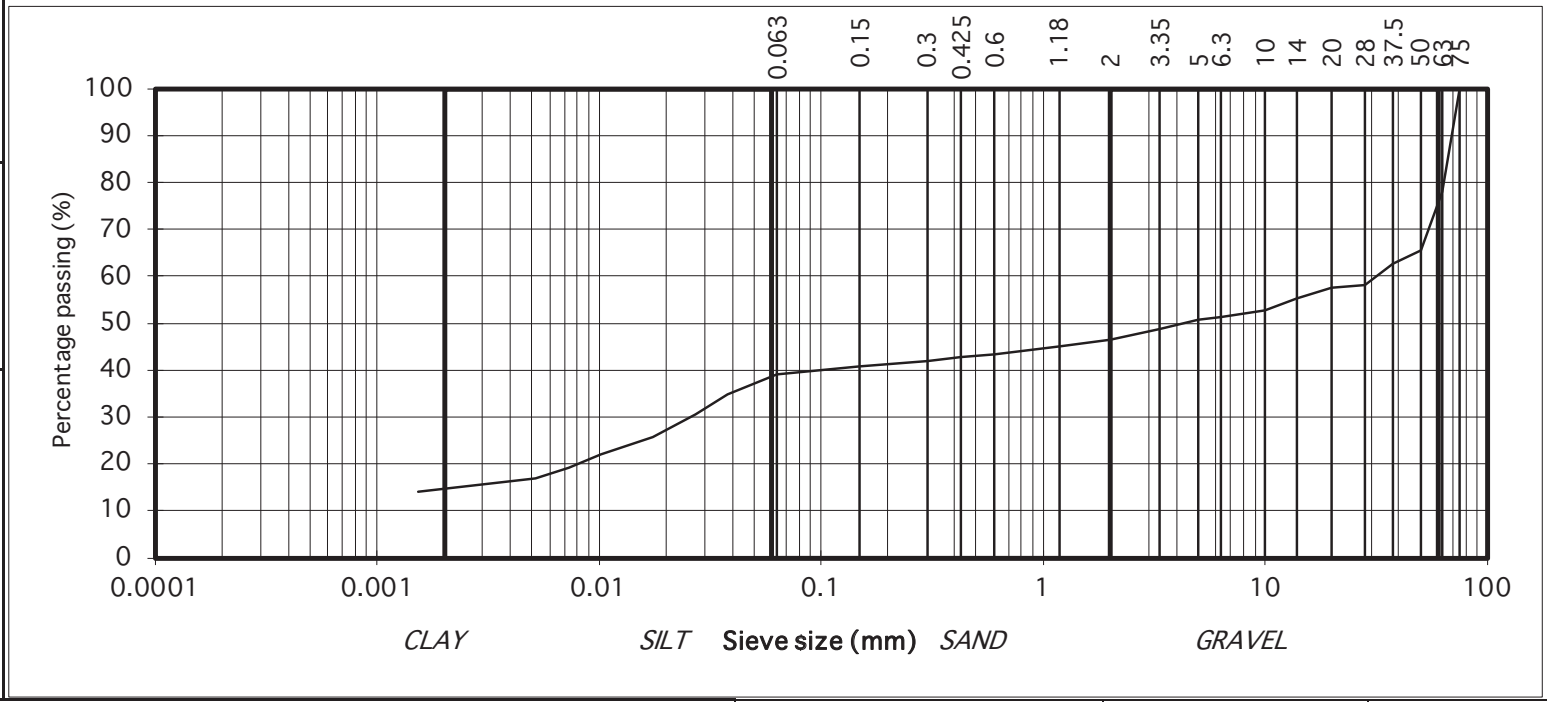
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	78	
50	66	GRAVEL
37.5	63	
28	58	
20	58	
14	55	
10	53	
6.3	51	
5	51	
3.35	49	
2	47	
1.18	45	SAND
0.6	43	
0.425	43	
0.3	42	
0.15	41	
0.063	39	SILT/CLAY
0.038	35	
0.027	31	
0.018	26	
0.010	22	
0.007	19	
0.005	17	
0.002	14	

Contract No.	23784	Report No.	R131871
Contract Name:	Clonburris Housing Development		
BH/TP :	WS44		
Sample No.	AA132837	Lab. Sample No.	A22/0868
Sample Type:	B		
Depth (m)	0.60	Customer:	Aecom / SDCC
Date Received	21/02/2022	Date Testing started	21/02/2022
Description:	Grey slightly sandy, gravelly, CLAY with many cobbles		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirementsof BS1377



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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)

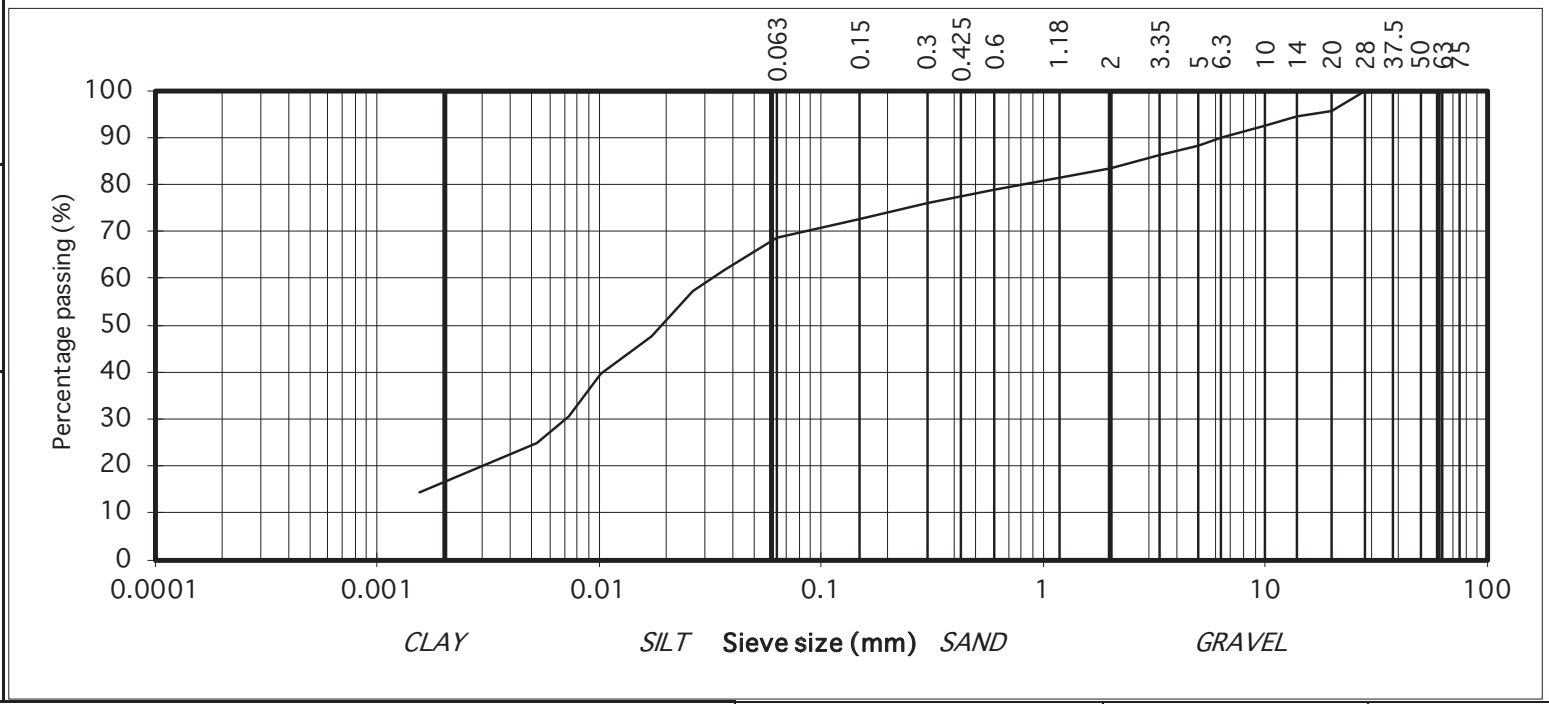
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	96	
14	95	
10	93	
6.3	90	
5	88	
3.35	86	
2	84	
1.18	81	SAND
0.6	79	
0.425	78	
0.3	76	
0.15	73	
0.063	69	SILT/CLAY
0.037	62	
0.027	57	
0.017	47	
0.010	40	
0.007	30	
0.005	25	
0.002	14	

Contract No.	23784	Report No.	R131900	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS47			
Sample No.	AA162166	Lab. Sample No.		A22/0872
Sample Type:	B			
Depth (m)	2.00	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		23/02/2022
Description:	Grey slightly sandy, slightly gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	06/04/22	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)

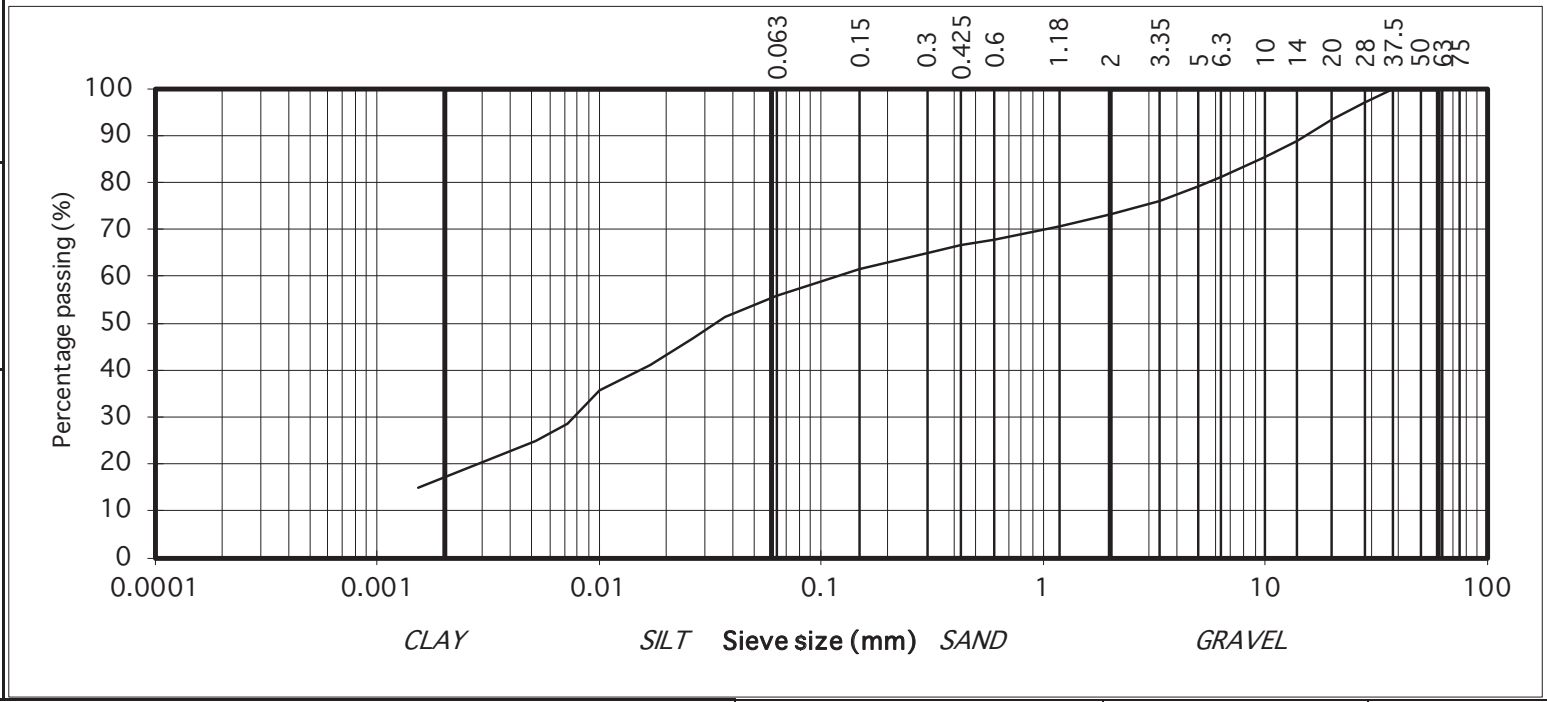
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	97	
20	94	
14	89	
10	86	
6.3	81	
5	79	
3.35	76	
2	73	
1.18	71	SAND
0.6	68	
0.425	67	
0.3	65	
0.15	62	
0.063	56	SILT/CLAY
0.037	51	
0.027	47	
0.017	41	
0.010	36	
0.007	29	
0.005	25	
0.002	15	

Contract No.	23784	Report No.	R131901	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS51			
Sample No.	AA153200	Lab. Sample No.		A22/0876
Sample Type:	B			
Depth (m)	0.70	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		26/02/2022
Description:	Brown slightly sandy, slightly gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Approved by:	Date:	Page no:
H Byrne	06/04/22	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)

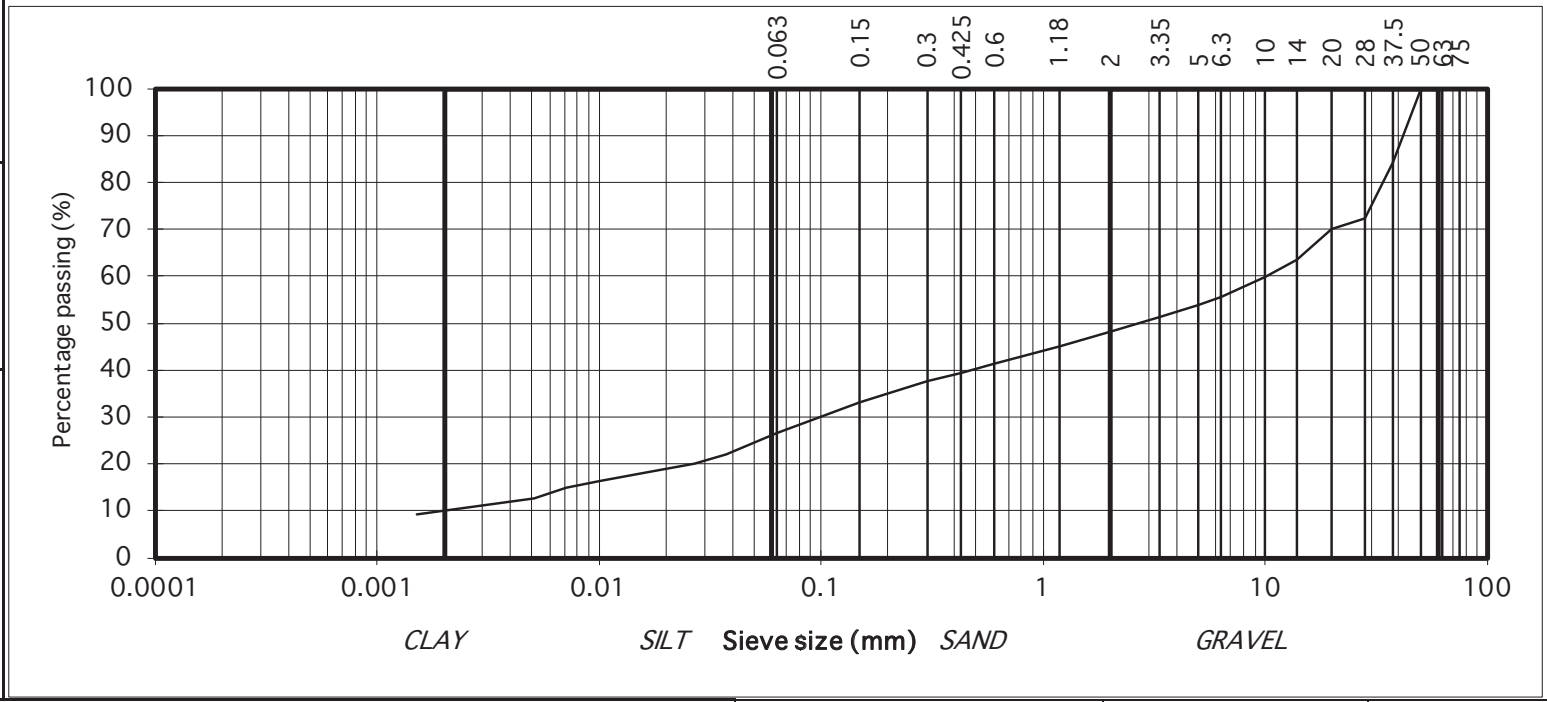
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	84	
28	72	
20	70	
14	64	
10	60	
6.3	56	
5	54	
3.35	51	
2	48	
1.18	45	SAND
0.6	41	
0.425	39	
0.3	38	
0.15	33	
0.063	27	SILT/CLAY
0.037	22	
0.027	20	
0.017	18	
0.010	16	
0.007	15	
0.005	13	
0.002	9	

Contract No.	23784	Report No.	R131957	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS55			
Sample No.	AA152193	Lab. Sample No.		A22/0878
Sample Type:	B			
Depth (m)	0.50	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		28/02/2022
Description:	Brown slightly sandy, gravelly, CLAY			

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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Approved by:	Date:	Page no:
H Byrne	06/04/22	1 of 1

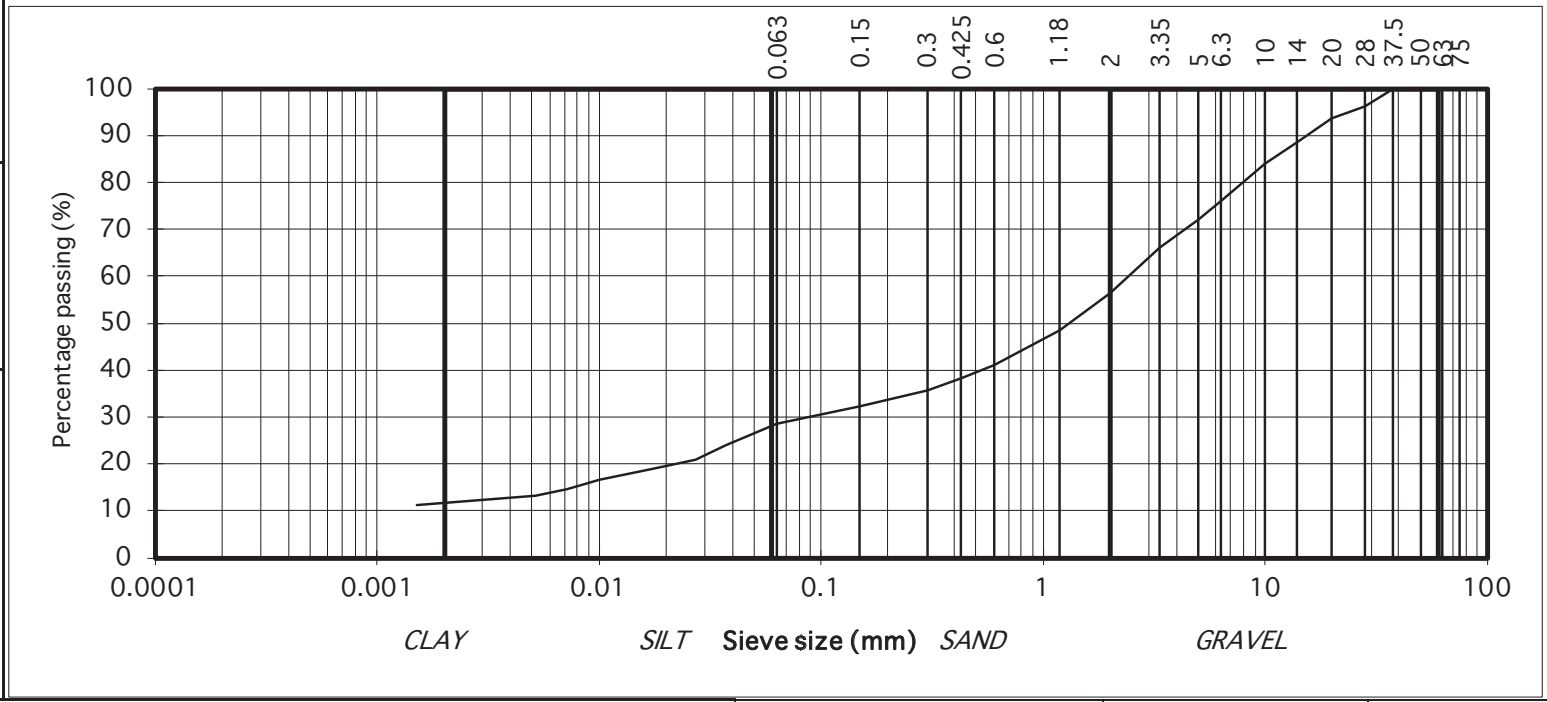
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	96	
20	94	
14	89	
10	84	
6.3	76	
5	72	
3.35	66	
2	56	
1.18	49	SAND
0.6	41	
0.425	38	
0.3	36	
0.15	32	
0.063	29	SILT/CLAY
0.038	24	
0.027	21	
0.017	19	
0.010	17	
0.007	15	
0.005	13	
0.002	11	

Contract No.	23784	Report No.	R131958	
Contract Name:	Clonburris Housing Development			
BH/TP :	WS59			
Sample No.	AA132826	Lab. Sample No.		A22/0882
Sample Type:	B			
Depth (m)	2.00	Customer:	Aecom / SDCC	
Date Received	21/02/2022	Date Testing started		26/02/2022
Description:	Grey slightly sandy, gravelly, CLAY			
Remarks	Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.			



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Approved by:	Date:	Page no:
H Byrne	06/04/22	1 of 1

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

Appendix 8

Rock Strength Testing

(Diametrial) POINT LOAD STRENGTH INDEX TEST DATA

Contract: Clonburris AGI
Contract no. 23784
Date of test: 02/03/2022

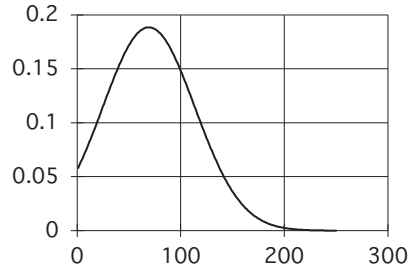
Sample Type: Core

RC No.	Depth m	D (Diameter) mm	P (failure load) kN	F	Is (index strength) Mpa	Is(50) (index strength) Mpa	*UCS MPa	Type	Orienation
RC01	3.7	78	18.0	1.222	2.96	3.61	72	d	//
	5.7	78	21.0	1.222	3.45	4.22	84	d	//
RC02	4.6	78	28.0	1.222	4.60	5.62	112	d	//
	7.6	78	24.0	1.222	3.94	4.82	96	d	//
RC03	4.6	78	24.0	1.222	3.94	4.82	96	d	//
	7.9	78	26.0	1.222	4.27	5.22	104	d	//
RC04	4.3	78	28.0	1.222	4.60	5.62	112	d	//
	6.7	78	6.0	1.222	0.99	1.20	24	d	//
RC05	3.7	78	4.0	1.222	0.66	0.80	16	d	//
	5.8	78	11.0	1.222	1.81	2.21	44	d	//
	6.6	78	12.0	1.222	1.97	2.41	48	d	//
	7.8	78	6.0	1.222	0.99	1.20	24	d	//
RC06	7.2	78	4.0	1.222	0.66	0.80	16	d	//
RC07	4.5	78	2.0	1.222	0.33	0.40	8	d	//
RC08	3.3	78	29.0	1.222	4.77	5.82	116	d	//
	7.2	78	4.0	1.222	0.66	0.80	16	d	//
RC09	3.7	78	20.0	1.222	3.29	4.02	80	d	//
	6.9	78	2.0	1.222	0.33	0.40	8	d	//
RC10	5.9	78	29.0	1.222	4.77	5.82	116	d	//
	7.6	78	30.0	1.222	4.93	6.02	120	d	//
RC11	6.9	78	34.0	1.222	5.59	6.83	137	d	//

Statistical Summary Data	Is(50)	UCS*
Number of Samples Tested	21	21
Minimum	0.40	8
Average	3.46	69
Maximum	6.83	137
Standard Dev.	2.22	44
Upper 95% Confidence Limit	7.82	156.36
Lower 95% Confidence Limit	-0.90	-17.92

Comments:
*UCS taken as k x Point Load Is(50): k= 20

*UCS Normal Distribution Curve



Abbreviations

i	irregular
a	axial
b	block
d	diametral

approx. orientation to planes of weakness/bedding

U	unknown
P	perpendicular
//	parallel

(Diametrial) POINT LOAD STRENGTH INDEX TEST DATA

Contract: Clonburris AGI
Contract no. 23784
Date of test: 02/03/2022

Sample Type: Core

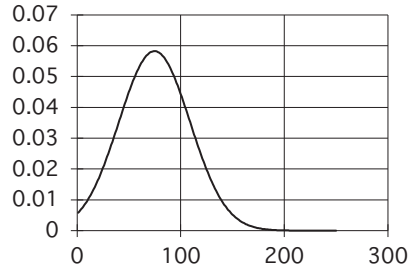
RC No.	Depth m	D (Diameter) mm	P (failure load) kN	F	Is (index strength) Mpa	Is(50) (index strength) Mpa	*UCS MPa	Type	Orienation
RC12	5.9	78	28.0	1.222	4.60	5.62	112	d	//
RC13	4.8	78	10.0	1.222	1.64	2.01	40	d	//
RC14	4.2	78	19.0	1.222	3.12	3.81	76	d	//
RC15	3.2	78	26.0	1.222	4.27	5.22	104	d	//
	7.5	78	10.0	1.222	1.64	2.01	40	d	//

.

Statistical Summary Data	Is(50)	UCS*
Number of Samples Tested	5	5
Minimum	2.01	40
Average	3.73	75
Maximum	5.62	112
Standard Dev.	1.71	34
Upper 95% Confidence Limit	7.09	141.84
Lower 95% Confidence Limit	0.38	7.54

Comments:
*UCS taken as k x Point Load Is(50): k= 20

*UCS Normal Distribution Curve



Abbreviations	
i	irregular
a	axial
b	block
d	diametral

approx. orientation to planes of weakness/bedding

U	unknown
P	perpendicular
//	parallel

Point Load Axial - Test Results

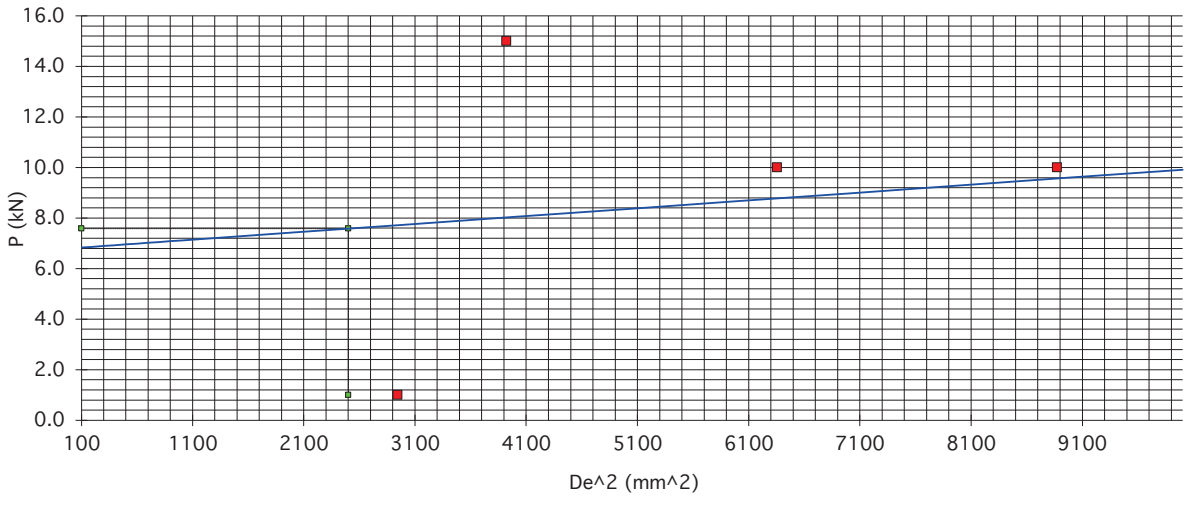
Contract: Clonburris AGI

Sample Type: Core

Contract No.: 23784

Date of Test: 01/03/2022 Tested by: D.O'S

RC Hole No.	Depth	W1 mm	W2 mm	D mm	P kN	De^2 mm^2	De mm	Is MN/m^2
RC03	4.6	98.0	94.0	82	8.0	10023	100	0.80
RC04	6.7	94.0	76.0	82	10.0	8875	94	1.13
RC05	3.7	42.0	46.0	70	15.0	3922	63	3.82
	7.8	62.0	66.0	78	10.0	6356	80	1.57
RC07	4.5	32.0	36.0	68	1.0	2944	54	0.34



Calculation of Is(50)

Equation of Best Fit P = 0.00031 De^2 + 6.802325824

P(50) at D(50) from graph = 7.58 kN

Is(50) = (P(50)/2500) x 1000 = 3.0 MN/m^2

IS(50) X 20 = UCS approximately = 60.63808 MPa

Appendix 9

Chemical & Environmental Laboratory Testing

Appendix 9.1	Nicholls Colton Laboratory Reports
Appendix 9.2	Eurofins Chemtest Laboratory Reports

Appendix 9.1

Nicholls Colton Laboratory Reports

Nicholls Colton Group
7 - 11 Harding Street
Leicester
LE1 4DH

IGSL
Unit F
M7 Business Park
Naas

Analytical Test Report: L22/01265/IGS - 22-24707

Your Project Reference:	**23784, Clonburris AGI**		
Your Order Number:	20108	Samples Received / Instructed:	07/03/2022 / 07/03/2022
Report Issue Number:	1	Sample Tested:	07/03 to 16/03/2022
Samples Analysed:	16 aggregate samples	Report issued:	23/03/2022

Signed

James Gane
Data Manager
Nicholls Colton Group

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with NC method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with NC method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue 10/12/2020
Owned by Emily Blissett - Customer Services Supervisor
Authorised by James Gane - Commercial Manager
L:\DATA\REPORTS\IRI294\[L22-01265-IGS - 22-24707.XLSM]Cover Sheet

Nicholls Colton Group
7 - 11 Harding Street
Leicester
LE1 4DH

L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Analytical Test Results - Chemical Analysis

NC Reference			221980	221981	221982	221983	221984	221985
Client Sample ID			RCO1	RCO1	RCO2	RCO3	RCO4	RCO5
Material			Core	Core	Core	Core	Core	Core
Source/Client Ref.			RC01 3.30-3.50m	RC01 6.50-7.50m	RC02 4.80-4.90m	RC03 3.40-3.60m	RC04 5.30-5.40m	RC05 3.20-3.30m
Depth - Top (m)			3.30	6.50	4.80	3.40	5.30	3.20
Depth - Bottom (m)			3.50	7.50	4.90	3.60	5.40	3.30
Sample Matrix			Other	Other	Other	Other	Other	Other
Determinant	**Units**	**Accreditation**						
Water soluble sulphate	(mg/l)	u	360	250	360	1100	500	260
pH Value	pH Units	MCERTS	8.3	8.7	8.8	8.1	8.6	8.4

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L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Analytical Test Results - Chemical Analysis

NC Reference			221986	221987	221988	221989	221990	221991
Client Sample ID			RCO6	RCO7	RCO8	RCO9	RC10	RC11
Material			Core	Core	Core	Core	Core	Core
Source/Client Ref.			RC06 3.20-3.30m	RC07 3.55-3.70m	RC08 4.70-4.90m	RC09 3.40-3.60m	RC10 4.00-4.20m	RC11 3.5-3.60m
Depth - Top (m)			3.20	3.55	4.70	3.40	4.00	3.50
Depth - Bottom (m)			3.30	3.70	4.90	3.60	4.20	3.60
Sample Matrix			Other	Other	Other	Other	Other	Other
Determinant	**Units**	**Accreditation**						
Water soluble sulphate	(mg/l)	u	450	360	330	240	550	660
pH Value	pH Units	MCERTS	8.5	8.4	7.9	8.0	8.8	8.3

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L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Analytical Test Results - Chemical Analysis

NC Reference			221992	221993	221994	221995
Client Sample ID			RC12	RC13	RC14	RC15
Material			Core	Core	Core	Core
Source/Client Ref.			RC12 4.00-4.20m	RC13 3.70-3.90m	RC14 3.50-3.60m	RC15 3.40-3.60m
Depth - Top (m)			4.00	3.70	3.50	3.40
Depth - Bottom (m)			4.20	3.90	3.60	3.60
Sample Matrix			Other	Other	Other	Other
Determinant	**Units**	**Accreditation**				
Water soluble sulphate	(mg/l)	u	1000	730	310	430
pH Value	pH Units	MCERTS	8.2	8.7	8.3	8.5

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L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Sample Descriptions

NC Reference	Client Sample ID	Material	Source/Client Ref.	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
221980	RCO1	Core	RC01 3.30-3.50m	-	Dark grey silt	2.0	< 0.1	100
221981	RCO1	Core	RC01 6.50-7.50m	-	Dark grey silt	-	-	100
221982	RCO2	Core	RC02 4.80-4.90m	-	Dark grey silt	-	-	100
221983	RCO3	Core	RC03 3.40-3.60m	-	Dark grey silt	4.6	< 0.1	100
221984	RCO4	Core	RC04 5.30-5.40m	-	Dark grey silt	-	-	100
221985	RCO5	Core	RC05 3.20-3.30m	-	Dark grey silt	0.8	< 0.1	100
221986	RCO6	Core	RC06 3.20-3.30m	-	Dark grey silt	-	-	100
221987	RCO7	Core	RC07 3.55-3.70m	-	Dark grey silt	-	-	100
221988	RCO8	Core	RC08 4.70-4.90m	-	Dark grey silt	-	-	100
221989	RCO9	Core	RC09 3.40-3.60m	-	Dark grey silt	0.9	< 0.1	100
221990	RC10	Core	RC10 4.00-4.20m	-	Dark grey silt	-	-	100
221991	RC11	Core	RC11 3.5-3.60m	-	Dark grey silt	-	-	100
221992	RC12	Core	RC12 4.00-4.20m	-	Dark grey silt	-	-	100
221993	RC13	Core	RC13 3.70-3.90m	-	Dark grey silt	4.2	< 0.1	100
221994	RC14	Core	RC14 3.50-3.60m	-	Dark grey silt	-	-	100
221995	RC15	Core	RC15 3.40-3.60m	-	Dark grey silt	-	-	100

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L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Sample Comments

NC Reference	Client Sample ID	Material	Source/Client Ref.	Client Sample Number	Comments
221980	RCO1	Core	RC01 3.30-3.50m	-	
221981	RCO1	Core	RC01 6.50-7.50m	-	
221982	RCO2	Core	RC02 4.80-4.90m	-	
221983	RCO3	Core	RC03 3.40-3.60m	-	
221984	RCO4	Core	RC04 5.30-5.40m	-	
221985	RCO5	Core	RC05 3.20-3.30m	-	
221986	RCO6	Core	RC06 3.20-3.30m	-	
221987	RCO7	Core	RC07 3.55-3.70m	-	
221988	RCO8	Core	RC08 4.70-4.90m	-	
221989	RCO9	Core	RC09 3.40-3.60m	-	
221990	RC10	Core	RC10 4.00-4.20m	-	
221991	RC11	Core	RC11 3.5-3.60m	-	
221992	RC12	Core	RC12 4.00-4.20m	-	
221993	RC13	Core	RC13 3.70-3.90m	-	
221994	RC14	Core	RC14 3.50-3.60m	-	
221995	RC15	Core	RC15 3.40-3.60m	-	

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L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preperation	Test Details
1744ASS	BS EN1744-1 Acid soluble sulphate			
1744PREP	BS EN1744-1 Sample Prep			
1744TSE	BS EN1744-1 Total Sulphur Clause 11.2			
1744WSS	BS EN1744-1 Water soluble sulphate			
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
TOCS	MS - CL - TOC Eltra	Air Dried	Passing 10mm test sieve	Determination of Total Organic Carbon in soils
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis

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L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided
C - Received in inappropriate container
H - Contains headspace
T - Temperature on receipt exceeds storage temperature
R - Date of sampling to receipt insufficient to allow analysis to be completed without deviation, Please note this is only a deviation if 'X' is also recorded against the sample

Observations whist in laboratory

X - Exceeds sampling to extraction or analysis timescales

NC Reference	Client Sample ID	Material	Source/Client Ref.	Client Sample Number	Test	Deviations
221980	RCO1	Core	RC01 3.30-3.50m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221980	RCO1	Core	RC01 3.30-3.50m	-	MS - CL - TOC Eltra	AT
221980	RCO1	Core	RC01 3.30-3.50m	-	MS - CL - pH in Soils	AT
221981	RCO1	Core	RC01 6.50-7.50m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221981	RCO1	Core	RC01 6.50-7.50m	-	MS - CL - pH in Soils	AT
221982	RCO2	Core	RC02 4.80-4.90m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221982	RCO2	Core	RC02 4.80-4.90m	-	MS - CL - pH in Soils	AT
221983	RCO3	Core	RC03 3.40-3.60m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221983	RCO3	Core	RC03 3.40-3.60m	-	MS - CL - TOC Eltra	AT
221983	RCO3	Core	RC03 3.40-3.60m	-	MS - CL - pH in Soils	AT
221984	RCO4	Core	RC04 5.3-5.40m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221984	RCO4	Core	RC04 5.3-5.40m	-	MS - CL - pH in Soils	AT
221985	RCO5	Core	RC05 3.20-3.30m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221985	RCO5	Core	RC05 3.20-3.30m	-	MS - CL - TOC Eltra	AT
221985	RCO5	Core	RC05 3.20-3.30m	-	MS - CL - pH in Soils	AT
221986	RCO6	Core	RC06 3.20-3.30m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221986	RCO6	Core	RC06 3.20-3.30m	-	MS - CL - pH in Soils	AT
221987	RCO7	Core	RC07 3.55-3.70m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221987	RCO7	Core	RC07 3.55-3.70m	-	MS - CL - pH in Soils	AT
221988	RCO8	Core	RC08 4.70-4.90m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221988	RCO8	Core	RC08 4.70-4.90m	-	MS - CL - pH in Soils	AT
221989	RCO9	Core	RC09 3.40-3.60m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221989	RCO9	Core	RC09 3.40-3.60m	-	MS - CL - TOC Eltra	AT
221989	RCO9	Core	RC09 3.40-3.60m	-	MS - CL - pH in Soils	AT
221990	RC10	Core	RC10 4.00-4.20m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221990	RC10	Core	RC10 4.00-4.20m	-	MS - CL - pH in Soils	AT
221991	RC11	Core	RC11 3.50-3.60m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221991	RC11	Core	RC11 3.50-3.60m	-	MS - CL - pH in Soils	AT
221992	RC12	Core	RC12 4.00-4.20m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221992	RC12	Core	RC12 4.00-4.20m	-	MS - CL - pH in Soils	AT

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L22/01265/IGS - 22-24707

Project Reference - 23784, Clonburris AGI

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided
C - Received in inappropriate container
H - Contains headspace
T - Temperature on receipt exceeds storage temperature
R - Date of sampling to receipt insufficient to allow analysis to be completed without deviation, Please note this is only a deviation if 'X' is also recorded against the sample

Observations whist in laboratory

X - Exceeds sampling to extraction or analysis timescales

NC Reference	Client Sample ID	Material	Source/Client Ref.	Client Sample Number	Test	Deviations
221993	RC13	Core	RC13 3.70-3.90m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221993	RC13	Core	RC13 3.70-3.90m	-	MS - CL - TOC Eltra	AT
221993	RC13	Core	RC13 3.70-3.90m	-	MS - CL - pH in Soils	AT
221994	RC14	Core	RC14 3.50-3.60m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221994	RC14	Core	RC14 3.50-3.60m	-	MS - CL - pH in Soils	AT
221995	RC15	Core	RC15 3.40-3.60m	-	MS - CL - Anions by Aquakem (2:1Extract)	AT
221995	RC15	Core	RC15 3.40-3.60m	-	MS - CL - pH in Soils	AT

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IGSL
Unit F
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Analytical Test Report: L22/01265/IGS - 22-24707-1 -

Your Project Reference:	**23784, Clonburris AGI**		
Your Order Number:	20108	Testing Received / Instructed:	07/03/2022 / 07/03/2022
Report Issue Number:	1	Sample Tested:	07/03 to 23/03/2022
Samples Analysed:	16 aggregate samples	Report issued:	23/03/2022

Signed

James Gane
Data Manager
Nicholls Colton Group

Notes:

This report has been amended to update Acid Soluble Sulphate results.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

The results included within the report are representative of the samples submitted for analysis.

A certificate of sampling was not supplied

Samples were supplied by customer, results apply to the samples as received.

Within the report any information provided by the client is identified with a '#'

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Accreditation Key

UKAS = UKAS Accreditation, u = Unaccredited

Date of Issue10/12/2020

Owned by Emily Blissett - Commercial Reporting Supervisor
Authorised by Lee Harbottle - GCM Operations Manager
L:\DATA\REPORTS\IRI294\[L22-01265-IGS - 22-24707-A.XLSM]Cover Sheet

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L22/01265/IGS - 22-24707-1 -

Project Reference - 23784, Clonburris AGI

Analytical Test Results

NC Reference			221980	221981	221982	221983	221984
Client Sample Reference			RCO1	RCO1	RCO2	RCO3	RCO4
Material			-	-	-	-	-
Source / Client Ref			-	-	-	-	-
Sample Description			Rock	Rock	Rock	Rock	Rock
	Units	**Accreditation**					
Carbonate Content as CO2	(%)	u	8.8	-	-	7.7	-
EN 1744 Determinations							
Acid soluble sulphate content (as SO_3)	(%)	UKAS	0.03	0.03	0.06	0.08	0.06
Acid soluble sulphate content (as SO_4)	(%)	u	0.04	0.04	0.07	0.09	0.07
Water soluble sulphate content (as SO_3)	(%)	UKAS	0.05	0.03	0.06	0.09	0.06
Water soluble sulphate content (as SO_3)	(mg/l)	u	239	146	306	446	311
Water soluble sulphate content (as SO_4)	(%)	u	0.06	0.04	0.07	0.11	0.07
Water soluble sulphate content (as SO_4)	(mg/l)	u	287	175	367	535	373
Total Sulphur content (as S) by HTC	(%)	UKAS	1.23	0.49	1.49	1.63	1.27

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Analytical Test Results

NC Reference			221985	221986	221987	221988	221989
Client Sample Reference			RCO5	RCO6	RCO7	RCO8	RCO9
Material			-	-	-	-	-
Source / Client Ref			-	-	-	-	-
Sample Description			Breeze Block	Breeze Block	Breeze Block	Breeze Block	Breeze Block
	Units	**Accreditation**					
Carbonate Content as CO2	(%)	u	22	-	-	-	15
EN 1744 Determinations							
Acid soluble sulphate content (as SO_3)	(%)	UKAS	0.08	0.07	0.06	0.05	0.03
Acid soluble sulphate content (as SO_4)	(%)	u	0.10	0.08	0.07	0.06	0.04
Water soluble sulphate content (as SO_3)	(%)	UKAS	0.07	0.04	0.05	0.05	0.04
Water soluble sulphate content (as SO_3)	(mg/l)	u	344	177	233	260	178
Water soluble sulphate content (as SO_4)	(%)	u	0.08	0.04	0.06	0.06	0.04
Water soluble sulphate content (as SO_4)	(mg/l)	u	413	212	280	311	213
Total Sulphur content (as S) by HTC	(%)	UKAS	0.67	1.29	1.44	1.32	0.80

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Analytical Test Results

NC Reference			221990	221991	221992	221993	221994
Client Sample Reference			RC10	RC11	RC12	RC13	RC14
Material			-	-	-	-	-
Source / Client Ref			-	-	-	-	-
Sample Description			Breeze Block	Breeze Block	Breeze Block	Breeze Block	Breeze Block
	Units	**Accreditation**					
Carbonate Content as CO2	(%)	u	-	-	-	12	-
EN 1744 Determinations							
Acid soluble sulphate content (as SO_3)	(%)	UKAS	0.09	0.09	0.08	0.07	0.07
Acid soluble sulphate content (as SO_4)	(%)	u	0.11	0.11	0.10	0.09	0.09
Water soluble sulphate content (as SO_3)	(%)	UKAS	0.07	0.09	0.09	0.06	0.11
Water soluble sulphate content (as SO_3)	(mg/l)	u	334	449	436	324	565
Water soluble sulphate content (as SO_4)	(%)	u	0.08	0.11	0.10	0.08	0.14
Water soluble sulphate content (as SO_4)	(mg/l)	u	400	538	523	389	678
Total Sulphur content (as S) by HTC	(%)	UKAS	1.52	1.47	1.57	0.82	0.53

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Analytical Test Results

NC Reference			**221995**
Client Sample Reference			RC15
Material			-
Source / Client Ref			-
Sample Description			Breeze Block
	Units	**Accreditation**	
Carbonate Content as CO2	(%)	u	-
EN 1744 Determinations			
Acid soluble sulphate content (as SO_3)	(%)	UKAS	0.08
Acid soluble sulphate content (as SO_4)	(%)	u	0.10
Water soluble sulphate content (as SO_3)	(%)	UKAS	0.08
Water soluble sulphate content (as SO_3)	(mg/l)	u	408
Water soluble sulphate content (as SO_4)	(%)	u	0.10
Water soluble sulphate content (as SO_4)	(mg/l)	u	489
Total Sulphur content (as S) by HTC	(%)	UKAS	1.78

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L22/01265/IGS - 22-24707-1 -

Project Reference - 23784, Clonburris AGI

Analysis Methodologies

Test Title	Details and Test method used
Suite A - EN 1744 ASS, WSS, TS (Cl. 12,10.1,11.2)	Total sulphur testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 11. Acid soluble sulphate testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 12. Water soluble sulphate testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 10.

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Analytical Test Report: L22/01132/IGS - 22-24524

Your Project Reference:	**23784 Clonburris Housing**		
Your Order Number:	20112	Testing Received / Instructed:	01/03/2022 / 01/03/2022
Report Issue Number:	1	Sample Tested:	01/03 to 07/03/2022
Samples Analysed:	4 aggregate samples	Report issued:	07/03/2022

Signed

James Gane
Data Manager
Nicholls Colton Group

Notes:

Samples will be retained for 14 days after issue of this report unless otherwise requested.

The results included within the report are representative of the samples submitted for analysis.

A certificate of sampling was not supplied

Samples were supplied by customer, results apply to the samples as received.

Within the report any information provided by the client is identified with a '#'

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Accreditation Key

UKAS = UKAS Accreditation, u = Unaccredited

Date of Issue10/12/2020

Owned by Emily Blissett - Commercial Reporting Supervisor
Authorised by Lee Harbottle - GCM Operations Manager
L:\DATA\REPORTS\IRI294\[L22-01132-IGS - 22-24524.XLSM]Methodology

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L22/01132/IGS - 22-24524

Project Reference - 23784 Clonburris Housing

Analytical Test Results

NC Reference			220400	220401	220402	220403
Client Sample Reference			A22/0819	A22/0847	A22/0850	A22/0860A
Material			Aggregate	Aggregate	Aggregate	Aggregate
Source / Client Ref			WS02	WS28	WS30	WS38
Sample Description			Black sandy crushed rock	Black clayey sandy crushed rock	Black sandy crushed rock	Brown slightly sandy slightly gravelly silty clay
	Units	**Accreditation**				
TRL 447 Determinants						
Water soluble sulphate (as SO_4)	(mg/l)	UKAS	75	401	567	128
Oxidisable Sulphides (as SO_4)	(%)	UKAS	0.13	0.53	0.75	0.12
Total Potential Sulphate (as SO_4)	(%)	UKAS	0.18	0.68	0.94	0.21
Total Sulphur (as S)	(%)	UKAS	0.06	0.23	0.31	0.07
Acid Soluble Sulphate (as SO_4)	(%)	UKAS	0.05	0.16	0.19	0.09
TRL 447 Sample Preparation - Oven Drying Temperature (°C)			105	105	105	75

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L22/01132/IGS - 22-24524

Project Reference - 23784 Clonburris Housing

Analysis Methodologies

Test Title	Details and Test method used
Full TRL 447 Suite	1. Sample preparation was in accordance with TRL 447 Appendix C. 2. Testing was carried out in accordance with methods 1, 2 and 4 of TRL 447 2001 (Updated 2005). 3. Oxidisable sulphides and total potential sulphate have been calculated in accordance with TRL 447, Appendix C Test 4 4. Values are reported against a dry mass of sample passing a 2mm test sieve after oven drying, where required material retained on the 2mm test sieve was recombined with the test portion prior to analysis.

Appendix 9.2

Eurofins Chemtest Laboratory Reports

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Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-06471-1
Initial Date of Issue:	07-Mar-2022
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	23784 Clonburris Housing Development
Quotation No.:	Q22-26609
Order No.:	
No. of Samples:	73
Turnaround (Wkdays):	9
Date Approved:	07-Mar-2022
Approved By:	
Details:	Stuart Henderson, Technical Manager

Date Received:	21-Feb-2022
Date Instructed:	21-Feb-2022
Results Due:	03-Mar-2022

Results - Leachate

Project: 23784 Clonburris Housing Development

Client: IGSL						**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609						**Chemtest Sample ID.:**	1376552	1376555	1376557	1376560	1376566	1376568	1376574	1376579	1376580	1376581	1376586
Order No.:						Client Sample Ref.:	AA1623670	AA162152	AA162159	AA152395	AA162163	AA162366	AA152176	AA162376	AA152382 AA152383	AA152184	AA162355
						Sample Location:	WS01	WS05	WS07	WS09	WS14	WS15	WS19	WS23	WS24	WS25	WS28
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00
						Bottom Depth (m):	0.40	0.80	0.40	0.40	0.90	0.60	0.50	0.80	1.10	1.20	0.30
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**												
Ammonium	U	1220	10:1	mg/l	0.050		< 0.050	0.067	0.20	2.1	0.087	0.059	0.086	< 0.050	< 0.050	< 0.050	< 0.050
Ammoniacal Nitrogen	U	1220	10:1	mg/l	0.050		0.17	0.078	0.21	1.9	0.10	0.086	0.086	< 0.050	< 0.050	< 0.050	0.063
Ammonium	N	1220	10:1	mg/kg	0.10		2.2	1.0	2.7	24	1.3	1.1	1.1	0.44	0.42	0.53	0.81

Results - Leachate

Project: 23784 Clonburris Housing Development

Client: IGSL						**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609						**Chemtest Sample ID.:**	1376589	1376592	1376593	1376595	1376600	1376603	1376609	1376611	1376613	1376614	1376619
Order No.:						Client Sample Ref.:	AA152393	AA152169	AA152385	AA132821	AA132827	AA162392	AA162156	AA152195	AA162385	AA152187	AA132823
						Sample Location:	WS30	WS33	WS36	WS37	WS43	WS45	WS48	WS50	WS52	WS53	WS59
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
						Bottom Depth (m):	1.50	0.60	0.40	1.60	0.60	0.60	0.70	0.50	1.10	0.80	0.60
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**												
Ammonium	U	1220	10:1	mg/l	0.050		0.10	< 0.050	0.078	0.12	0.25	0.070	0.051	< 0.050	0.13	0.063	0.088
Ammoniacal Nitrogen	U	1220	10:1	mg/l	0.050		0.093	< 0.050	0.069	0.10	0.21	0.14	< 0.050	< 0.050	0.11	0.066	0.10
Ammonium	N	1220	10:1	mg/kg	0.10		1.2	0.49	0.89	1.3	2.7	1.8	0.64	0.62	1.4	0.85	1.3

Results - Leachate

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**		22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**		1376621
Order No.:				Client Sample Ref.:		AA132819
				Sample Location:		WS60
				Sample Type:		SOIL
				Top Depth (m):		0.00
				Bottom Depth (m):		1.00
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Ammonium	U	1220	10:1	mg/l	0.050	< 0.050
Ammoniacal Nitrogen	U	1220	10:1	mg/l	0.050	0.11
Ammonium	N	1220	10:1	mg/kg	0.10	1.4

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376552	1376553	1376554	1376555	1376556	1376557	1376558	1376559	1376560
Order No.:			Client Sample Ref.:		AA1623670	AA162371	AA162155	AA162152	AA162153	AA162159	AA162160	AA152194	AA152395
			Sample Location:		WS01	WS01	WS03	WS05	WS05	WS07	WS07	WS08	WS09
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	0.40	1.40	0.00	0.80	0.00	0.40	0.00	0.00
			Bottom Depth (m):		0.40	1.50	2.00	0.80	1.70	0.40	1.70	1.10	0.40
			Asbestos Lab:		COVENTRY			COVENTRY		COVENTRY			COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-			-		-			-
Asbestos Identification	U	2192		N/A	No Asbestos Detected			No Asbestos Detected		No Asbestos Detected			No Asbestos Detected
Moisture	N	2030	%	0.020	22	14	15	28	16	20	13	23	27
Stones and Removed Materials	N	2030	%	0.020									
pH	M	2010		4.0	[A] 8.3			[A] 8.4		[A] 8.6		[A] 8.5	[A] 8.2
pH (2.5:1)	N	2010		4.0		[A] 8.9	[A] 8.7		[A] 8.6				
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	[A] < 0.40			[A] 0.87		[A] 0.60		[A] 0.82	[A] 1.7
Magnesium (Water Soluble)	N	2120	g/l	0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010				
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		[A] 0.010	[A] 0.053		[A] 0.081				
Total Sulphur	M	2175	%	0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010				
Sulphur (Elemental)	M	2180	mg/kg	1.0	[A] 2.0			[A] 1.8		[A] 1.1			[A] 3.6
Chloride (Water Soluble)	M	2220	g/l	0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010				
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010	< 0.010		< 0.010				
Cyanide (Total)	M	2300	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 15			[A] 13		[A] 6.3			[A] 12
Ammonium (Water Soluble)	M	2220	g/l	0.01		< 0.01	< 0.01		< 0.01				
Sulphate (Total)	U	2430	%	0.010	[A] 0.088			[A] 0.33		[A] 0.087			[A] 0.19
Sulphate (Acid Soluble)	U	2430	%	0.010		[A] 0.029	[A] 0.010		[A] 0.034				
Arsenic	M	2450	mg/kg	1.0	12	32		25	21	20	6.4	11	17
Barium	M	2450	mg/kg	10	44	32		81	86	96	12	78	82
Beryllium	U	2450	mg/kg	1.0								< 1.0	
Cadmium	M	2450	mg/kg	0.10	2.4	3.5		1.0	2.6	2.9	1.1	1.7	2.0
Chromium	M	2450	mg/kg	1.0	26	31		19	21	20	17	16	24
Molybdenum	M	2450	mg/kg	2.0	3.4	10		4.5	8.1	6.7	< 2.0		4.4
Antimony	N	2450	mg/kg	2.0	< 2.0	3.8		< 2.0	3.4	3.9	< 2.0		2.1
Copper	M	2450	mg/kg	0.50	25	48		35	37	29	17	22	36
Mercury	M	2450	mg/kg	0.10	0.14	< 0.10		< 0.10	< 0.10	0.13	< 0.10	0.12	0.35
Nickel	M	2450	mg/kg	0.50	44	86		72	81	60	30	39	38
Lead	M	2450	mg/kg	0.50	23	20		32	28	34	11	27	79
Selenium	M	2450	mg/kg	0.20	0.58	2.8		2.4	6.6	0.59	0.27	0.91	1.4
Vanadium	U	2450	mg/kg	5.0								25	
Zinc	M	2450	mg/kg	0.50	110	120		86	110	88	46	66	110
Chromium (Trivalent)	N	2490	mg/kg	1.0	26			19		20		16	24
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50			< 0.50		< 0.50		< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	[A] 1.2	[A] 0.37		[A] 1.2	[A] 0.59	[A] 0.87	[A] 0.38	[A] 1.7	[A] 0.99
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10		< 10	< 10	< 10	< 10		< 10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL					**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609					**Chemtest Sample ID.:**	1376552	1376553	1376554	1376555	1376556	1376557	1376558	1376559	1376560
Order No.:					Client Sample Ref.:	AA1623670	AA162371	AA162155	AA162152	AA162153	AA162159	AA162160	AA152194	AA152395
					Sample Location:	WS01	WS01	WS03	WS05	WS05	WS07	WS07	WS08	WS09
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.00	0.40	1.40	0.00	0.80	0.00	0.40	0.00	0.00
					Bottom Depth (m):	0.40	1.50	2.00	0.80	1.70	0.40	1.70	1.10	0.40
					Asbestos Lab:	COVENTRY			COVENTRY		COVENTRY			COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total TPH >C6-C40	M	2670	mg/kg	10		[A] < 10				[A] < 10		[A] < 10		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0			[A] < 5.0		[A] < 5.0			[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0			[A] < 5.0		[A] < 5.0			[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10			[A] < 10		[A] < 10			[A] < 10	[A] < 10
Benzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0
Toluene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0
Ethylbenzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0
m & p-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0
o-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0
Naphthalene	M	2800	mg/kg	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
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	1.4		< 0.10	0.36	< 0.10	0.68	< 0.10	< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10	0.63		< 0.10	0.12	< 0.10	0.28	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	1.9		0.45	0.39	0.14	1.2	0.34	0.97	
Pyrene	M	2800	mg/kg	0.10	< 0.10	1.4		0.29	0.37	0.13	1.1	0.22	0.90	
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	1.2		< 0.10	0.26	< 0.10	0.81	< 0.10	0.40	
Chrysene	M	2800	mg/kg	0.10	< 0.10	0.93		< 0.10	0.20	< 0.10	0.78	< 0.10	0.46	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	1.2		< 0.10	0.25	< 0.10	0.84	< 0.10	< 0.10	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376552	1376553	1376554	1376555	1376556	1376557	1376558	1376559	1376560
Order No.:			Client Sample Ref.:		AA1623670	AA162371	AA162155	AA162152	AA162153	AA162159	AA162160	AA152194	AA152395
			Sample Location:		WS01	WS01	WS03	WS05	WS05	WS07	WS07	WS08	WS09
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	0.40	1.40	0.00	0.80	0.00	0.40	0.00	0.00
			Bottom Depth (m):		0.40	1.50	2.00	0.80	1.70	0.40	1.70	1.10	0.40
			Asbestos Lab:		COVENTRY			COVENTRY		COVENTRY			COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	0.73		< 0.10	0.19	< 0.10	0.69	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	1.2		< 0.10	0.27	< 0.10	0.90	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	0.99		< 0.10	< 0.10	< 0.10	0.80	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.59		< 0.10	< 0.10	< 0.10	0.42	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	0.88		< 0.10	< 0.10	< 0.10	0.78	< 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
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	13		< 2.0	2.4	< 2.0	9.3	< 2.0	2.7
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010
PCB 138	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010
PCB 180	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	[A] < 0.10	[A] < 0.10		[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10		[A] < 0.10
Total Phenols	M	2920	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**	1376561	1376562	1376563	1376564	1376565	1376566	1376567	1376568	1376569	1376570
Order No.:				Client Sample Ref.:	AA152396 AA152397	AA152400	AA152398	AA152189	AA152190 AA152191	AA162163	AA162164	AA162366	AA162367 AA162368	AA152168
				Sample Location:	WS09	WS10	WS12	WS13	WS13	WS14	WS14	WS15	WS15	WS16
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.40	0.00	0.00	0.00	1.00	0.00	0.90	0.00	0.60	1.00
				Bottom Depth (m):	2.00	1.30	0.80	1.00	2.00	0.90	2.00	0.60	2.40	1.20
				Asbestos Lab:						COVENTRY		COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A						-		-		
Asbestos Identification	U	2192		N/A						No Asbestos Detected		No Asbestos Detected		
Moisture	N	2030	%	0.020	21	15	25	21	16	18	18	21	19	17
Stones and Removed Materials	N	2030	%	0.020										
pH	M	2010		4.0						[A] 8.5		[A] 8.5		
pH (2.5:1)	N	2010		4.0		[A] 8.7	[A] 8.6			[A] 8.6				[A] 8.7
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40						[A] 0.45		[A] < 0.40		
Magnesium (Water Soluble)	N	2120	g/l	0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010				[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		[A] 0.019	[A] 0.049			[A] 0.017				[A] 0.016
Total Sulphur	M	2175	%	0.010		[A] < 0.010	[A] 0.018			[A] 0.019				[A] 0.019
Sulphur (Elemental)	M	2180	mg/kg	1.0						[A] 3.6		[A] < 1.0		
Chloride (Water Soluble)	M	2220	g/l	0.010		[A] < 0.010	[A] 0.027			[A] < 0.010				[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010	< 0.010			0.012				< 0.010
Cyanide (Total)	M	2300	mg/kg	0.50						[A] < 0.50		[A] < 0.50		
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50						[A] 17		[A] 5.5		
Ammonium (Water Soluble)	M	2220	g/l	0.01		< 0.01	< 0.01			< 0.01				< 0.01
Sulphate (Total)	U	2430	%	0.010						[A] 0.079		[A] 0.072		
Sulphate (Acid Soluble)	U	2430	%	0.010		[A] 0.019	[A] 0.062			[A] 0.021				[A] < 0.010
Arsenic	M	2450	mg/kg	1.0	22			8.4	21	17	26	17	18	
Barium	M	2450	mg/kg	10	55			17	67	160	44	22	110	
Beryllium	U	2450	mg/kg	1.0										
Cadmium	M	2450	mg/kg	0.10	2.9			0.73	0.86	2.7	4.4	2.9	2.3	
Chromium	M	2450	mg/kg	1.0	19			3.9	16	17	16	13	27	
Molybdenum	M	2450	mg/kg	2.0	9.7			4.6	4.0	5.5	13	7.9	6.8	
Antimony	N	2450	mg/kg	2.0	3.9			< 2.0	< 2.0	2.2	5.4	3.3	2.5	
Copper	M	2450	mg/kg	0.50	35			10	32	30	34	24	34	
Mercury	M	2450	mg/kg	0.10	< 0.10			< 0.10	0.10	0.10	< 0.10	< 0.10	0.17	
Nickel	M	2450	mg/kg	0.50	78			29	65	57	88	58	65	
Lead	M	2450	mg/kg	0.50	32			15	30	27	27	15	43	
Selenium	M	2450	mg/kg	0.20	0.99			1.2	2.0	0.52	3.0	1.1	1.2	
Vanadium	U	2450	mg/kg	5.0										
Zinc	M	2450	mg/kg	0.50	110			35	77	98	160	100	100	
Chromium (Trivalent)	N	2490	mg/kg	1.0						17		13		
Chromium (Hexavalent)	N	2490	mg/kg	0.50						< 0.50		< 0.50		
Total Organic Carbon	M	2625	%	0.20	[A] 0.54			[A] 1.3	[A] 0.74	[A] 0.81	[A] 0.64	[A] 0.57	[A] 1.4	
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10			< 10	< 10	< 10	< 10	< 10	< 10	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL		**Chemtest Job No.:**			22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609		**Chemtest Sample ID.:**			1376561	1376562	1376563	1376564	1376565	1376566	1376567	1376568	1376569	1376570
Order No.:		Client Sample Ref.:			AA152396 AA152397	AA152400	AA152398	AA152189	AA152190 AA152191	AA162163	AA162164	AA162366	AA162367 AA162368	AA152168
		Sample Location:			WS09	WS10	WS12	WS13	WS13	WS14	WS14	WS15	WS15	WS16
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.40	0.00	0.00	0.00	1.00	0.00	0.90	0.00	0.60	1.00
		Bottom Depth (m):			2.00	1.30	0.80	1.00	2.00	0.90	2.00	0.60	2.40	1.20
		Asbestos Lab:								COVENTRY		COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total TPH >C6-C40	M	2670	mg/kg	10	[A] < 10			[A] < 10	[A] < 10		[A] < 10		[A] < 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0						[A] < 5.0		[A] < 5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0						[A] < 1.0		[A] < 1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0						[A] < 5.0		[A] < 5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0						[A] < 10		[A] < 10		
Benzene	M	2760	µg/kg	1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Toluene	M	2760	µg/kg	1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Ethylbenzene	M	2760	µg/kg	1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
m & p-Xylene	M	2760	µg/kg	1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
o-Xylene	M	2760	µg/kg	1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Naphthalene	M	2800	mg/kg	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	
Acenaphthene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	M	2800	mg/kg	0.10	0.48			0.32	< 0.10	< 0.10	< 0.10	< 0.10	0.27	
Anthracene	M	2800	mg/kg	0.10	0.24			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.20	
Fluoranthene	M	2800	mg/kg	0.10	0.80			0.45	< 0.10	0.39	< 0.10	< 0.10	0.37	
Pyrene	M	2800	mg/kg	0.10	0.76			0.36	< 0.10	0.42	< 0.10	< 0.10	0.33	
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.53			0.16	< 0.10	0.30	< 0.10	< 0.10	0.33	
Chrysene	M	2800	mg/kg	0.10	0.51			0.16	< 0.10	0.24	< 0.10	< 0.10	0.40	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.60			0.22	< 0.10	0.29	< 0.10	< 0.10	0.36	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376561	1376562	1376563	1376564	1376565	1376566	1376567	1376568	1376569	1376570
Order No.:			Client Sample Ref.:		AA152396 AA152397	AA152400	AA152398	AA152189	AA152190 AA152191	AA162163	AA162164	AA162366	AA162367 AA162368	AA152168
			Sample Location:		WS09	WS10	WS12	WS13	WS13	WS14	WS14	WS15	WS15	WS16
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.00	0.00	0.00	1.00	0.00	0.90	0.00	0.60	1.00
			Bottom Depth (m):		2.00	1.30	0.80	1.00	2.00	0.90	2.00	0.60	2.40	1.20
			Asbestos Lab:							COVENTRY		COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.53			0.18	< 0.10	0.17	< 0.10	< 0.10	0.26	
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.48			0.17	< 0.10	0.32	< 0.10	< 0.10	0.31	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.61			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.38	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.43			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.28	
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.49			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.33	
Coronene	N	2800	mg/kg	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	6.5			2.0	< 2.0	2.1	< 2.0	< 2.0	3.8	
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 138	U	2815	mg/kg	0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 180	U	2815	mg/kg	0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	[A] < 0.10			[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	
Total Phenols	M	2920	mg/kg	0.10						< 0.10		< 0.10		

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**	1376571	1376572	1376573	1376574	1376575	1376576	1376577	1376578	1376579	1376580
Order No.:				Client Sample Ref.:	AA162168	AA162169	AA162170	AA152176	AA152177	AA152178 AA152179	AA162382	AA162383	AA162376	AA152382 AA152383
				Sample Location:	WS18	WS18	WS18	WS19	WS19	WS19	WS22	WS22	WS23	WS24
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.00	0.50	1.30	0.00	0.50	1.00	0.00	1.00	0.30	0.00
				Bottom Depth (m):	0.50	1.30	2.00	0.50	1.00	3.00	1.00	1.30	0.80	1.10
				Asbestos Lab:				COVENTRY					COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A				-					-	-
Asbestos Identification	U	2192		N/A				No Asbestos Detected					No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	24	21	25	23	27	24	27	17	19	16
Stones and Removed Materials	N	2030	%	0.020										
pH	M	2010		4.0	[A] 8.5	[A] 8.5	[A] 8.4	[A] 8.5					[A] 8.3	[A] 8.6
pH (2.5:1)	N	2010		4.0		[A] 8.5			[A] 8.7		[A] 8.4			[A] 8.7
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] 0.54					[A] 0.62	[A] < 0.40
Magnesium (Water Soluble)	N	2120	g/l	0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010			[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		[A] 0.066			[A] 0.039		[A] 0.030			[A] 0.036
Total Sulphur	M	2175	%	0.010		[A] 0.14			[A] 0.013		[A] 0.041			[A] 0.022
Sulphur (Elemental)	M	2180	mg/kg	1.0				[A] 1.5					[A] 4.0	[A] 1.4
Chloride (Water Soluble)	M	2220	g/l	0.010		[A] 0.023			[A] 0.031		[A] < 0.010			[A] 0.034
Nitrate (Water Soluble)	N	2220	g/l	0.010		0.014			< 0.010		< 0.010			< 0.010
Cyanide (Total)	M	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50					[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50				[A] 9.7					[A] 12	[A] 12
Ammonium (Water Soluble)	M	2220	g/l	0.01		< 0.01			< 0.01		< 0.01			< 0.01
Sulphate (Total)	U	2430	%	0.010				[A] 0.095					[A] 0.15	[A] 0.064
Sulphate (Acid Soluble)	U	2430	%	0.010		[A] 0.015			[A] < 0.010		[A] 0.074			[A] 0.046
Arsenic	M	2450	mg/kg	1.0	11	8.9	18	14	11	12	8.5	4.4	12	8.9
Barium	M	2450	mg/kg	10	66	52	19	110	13	59	65	170	90	85
Beryllium	U	2450	mg/kg	1.0	1.0	< 1.0	1.0							
Cadmium	M	2450	mg/kg	0.10	1.4	1.8	2.9	2.4	2.8	1.5	1.3	1.9	2.0	1.9
Chromium	M	2450	mg/kg	1.0	24	8.4	16	19	11	12	22	7.1	16	14
Molybdenum	M	2450	mg/kg	2.0				3.9	6.5	4.6	2.7	3.0	4.9	3.9
Antimony	N	2450	mg/kg	2.0				< 2.0	4.3	2.3	< 2.0	< 2.0	2.9	< 2.0
Copper	M	2450	mg/kg	0.50	31	13	27	20	21	21	18	11	21	14
Mercury	M	2450	mg/kg	0.10	0.25	< 0.10	< 0.10	< 0.10	< 0.10	0.11	0.14	< 0.10	0.14	< 0.10
Nickel	M	2450	mg/kg	0.50	35	29	75	40	35	30	29	31	40	35
Lead	M	2450	mg/kg	0.50	46	8.9	19	26	18	37	33	5.6	25	16
Selenium	M	2450	mg/kg	0.20	0.93	0.21	2.5	0.39	1.2	1.2	0.80	0.35	0.71	0.46
Vanadium	U	2450	mg/kg	5.0	34	13	28							
Zinc	M	2450	mg/kg	0.50	80	48	81	82	81	83	77	40	79	58
Chromium (Trivalent)	N	2490	mg/kg	1.0	24	8.4	16	19					16	14
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50					< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	[A] 2.0	[A] 0.27	[A] 0.66	[A] 1.1	[A] 1.1	[A] 3.2	[A] 1.9	[A] 0.39	[A] 1.5	[A] 0.73
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10				< 10	< 10	< 10	< 10	< 10	< 10	< 10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL		**Chemtest Job No.:**			22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609		**Chemtest Sample ID.:**			1376571	1376572	1376573	1376574	1376575	1376576	1376577	1376578	1376579	1376580
Order No.:		Client Sample Ref.:			AA162168	AA162169	AA162170	AA152176	AA152177	AA152178 AA152179	AA162382	AA162383	AA162376	AA152382 AA152383
		Sample Location:			WS18	WS18	WS18	WS19	WS19	WS19	WS22	WS22	WS23	WS24
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	0.50	1.30	0.00	0.50	1.00	0.00	1.00	0.30	0.00
		Bottom Depth (m):			0.50	1.30	2.00	0.50	1.00	3.00	1.00	1.30	0.80	1.10
		Asbestos Lab:						COVENTRY					COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total TPH >C6-C40	M	2670	mg/kg	10					[A] < 10	[A] < 10	[A] < 10	[A] < 10		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0					[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0					[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0					[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10	[A] < 10	[A] < 10					[A] < 10	[A] < 10
Benzene	M	2760	µg/kg	1.0				[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	M	2760	µg/kg	1.0				[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	M	2760	µg/kg	1.0				[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	M	2760	µg/kg	1.0				[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	M	2760	µg/kg	1.0				[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0				[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	M	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	M	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	M	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	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.21	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	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	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.40	0.37	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.42	0.29	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.33	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.40	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.39	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL					**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609					**Chemtest Sample ID.:**	1376571	1376572	1376573	1376574	1376575	1376576	1376577	1376578	1376579	1376580
Order No.:					Client Sample Ref.:	AA162168	AA162169	AA162170	AA152176	AA152177	AA152178 AA152179	AA162382	AA162383	AA162376	AA152382 AA152383
					Sample Location:	WS18	WS18	WS18	WS19	WS19	WS19	WS22	WS22	WS23	WS24
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.00	0.50	1.30	0.00	0.50	1.00	0.00	1.00	0.30	0.00
					Bottom Depth (m):	0.50	1.30	2.00	0.50	1.00	3.00	1.00	1.30	0.80	1.10
					Asbestos Lab:				COVENTRY					COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**											
Benzo[k]fluoranthene	M	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	0.32	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	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	M	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	2.8	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010					[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 52	U	2815	mg/kg	0.010					[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 90+101	U	2815	mg/kg	0.010					[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 118	U	2815	mg/kg	0.010					[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 153	U	2815	mg/kg	0.010					[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 138	U	2815	mg/kg	0.010					[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 180	U	2815	mg/kg	0.010					[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10					[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10
Total Phenols	M	2920	mg/kg	0.10					< 0.10					< 0.10	< 0.10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**	1376581	1376582	1376583	1376584	1376585	1376586	1376587	1376588	1376589	1376590
Order No.:				Client Sample Ref.:	AA152184	AA152185 AA152186	AA152173	AA152174	AA152175	AA162355	AA162356	AA152165	AA152393	AA152180
				Sample Location:	WS25	WS25	WS26	WS26	WS26	WS28	WS28	WS29	WS30	WS31
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.00	1.20	0.00	0.90	1.50	0.00	0.30	0.70	0.20	0.00
				Bottom Depth (m):	1.20	2.70	0.90	1.50	2.50	0.30	1.40	1.60	1.50	1.50
				Asbestos Lab:	COVENTRY					COVENTRY			COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A	-					-			-	
Asbestos Identification	U	2192		N/A	No Asbestos Detected					No Asbestos Detected			No Asbestos Detected	
Moisture	N	2030	%	0.020	26	19	24	16	18	16	19	15	27	21
Stones and Removed Materials	N	2030	%	0.020						< 0.020				
pH	M	2010		4.0	[A] 8.2		[A] 8.3	[A] 8.5	[A] 8.5	[A] 8.2			[A] 8.2	
pH (2.5:1)	N	2010		4.0			[A] 8.4					[A] 8.8		[A] 8.6
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	[A] < 0.40		[A] 0.69	[A] < 0.40	[A] < 0.40	[A] 0.76			[A] 0.52	
Magnesium (Water Soluble)	N	2120	g/l	0.010			[A] < 0.010					[A] < 0.010		[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010			[A] 0.055					[A] 0.017		[A] 0.042
Total Sulphur	M	2175	%	0.010			[A] 0.041					[A] < 0.010		[A] 0.023
Sulphur (Elemental)	M	2180	mg/kg	1.0	[A] 1.4					[A] 16			[A] 18	
Chloride (Water Soluble)	M	2220	g/l	0.010			[A] 0.020					[A] < 0.010		[A] 0.015
Nitrate (Water Soluble)	N	2220	g/l	0.010			0.023					< 0.010		< 0.010
Cyanide (Total)	M	2300	mg/kg	0.50	[A] < 0.50		[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50			[A] < 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 14					[A] 12			[A] 10	
Ammonium (Water Soluble)	M	2220	g/l	0.01			< 0.01					< 0.01		< 0.01
Sulphate (Total)	U	2430	%	0.010	[A] 0.065					[A] 0.15			[A] 0.13	
Sulphate (Acid Soluble)	U	2430	%	0.010			[A] 0.061					[A] 0.012		[A] 0.023
Arsenic	M	2450	mg/kg	1.0	9.6	9.7	9.1	13	10	1.4	10		7.9	9.1
Barium	M	2450	mg/kg	10	58	25	92	63	48	< 10	110		290	63
Beryllium	U	2450	mg/kg	1.0			< 1.0	< 1.0	< 1.0					
Cadmium	M	2450	mg/kg	0.10	2.0	1.4	1.4	2.7	2.5	0.15	1.6		1.7	1.4
Chromium	M	2450	mg/kg	1.0	18	16	18	17	12	2.9	17		13	12
Molybdenum	M	2450	mg/kg	2.0	3.9	4.9				< 2.0	2.8		2.9	3.1
Antimony	N	2450	mg/kg	2.0	< 2.0	2.0				< 2.0	< 2.0		< 2.0	< 2.0
Copper	M	2450	mg/kg	0.50	29	21	26	23	24	2.8	19		16	17
Mercury	M	2450	mg/kg	0.10	0.15	< 0.10	0.25	< 0.10	< 0.10	< 0.10	0.12		0.12	< 0.10
Nickel	M	2450	mg/kg	0.50	41	52	32	57	54	5.1	32		29	33
Lead	M	2450	mg/kg	0.50	35	19	48	17	11	2.8	26		27	19
Selenium	M	2450	mg/kg	0.20	0.89	3.1	0.82	0.25	1.1	< 0.20	0.67		0.68	0.29
Vanadium	U	2450	mg/kg	5.0			28	25	18					
Zinc	M	2450	mg/kg	0.50	96	74	70	83	95	10	63		65	71
Chromium (Trivalent)	N	2490	mg/kg	1.0	18		18	17	12	2.9			13	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50			< 0.50	
Total Organic Carbon	M	2625	%	0.20	[A] 1.9	[A] 0.48	[A] 2.1	[A] 0.31	[A] 0.84	[A] 2.8	[A] 1.8		[A] 3.3	[A] 1.2
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10				< 10	27		< 10	< 10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			Chemtest Job No.:		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			Chemtest Sample ID.:		1376581	1376582	1376583	1376584	1376585	1376586	1376587	1376588	1376589	1376590
Order No.:			Client Sample Ref.:		AA152184	AA152185 AA152186	AA152173	AA152174	AA152175	AA162355	AA162356	AA152165	AA152393	AA152180
			Sample Location:		WS25	WS25	WS26	WS26	WS26	WS28	WS28	WS29	WS30	WS31
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	1.20	0.00	0.90	1.50	0.00	0.30	0.70	0.20	0.00
			Bottom Depth (m):		1.20	2.70	0.90	1.50	2.50	0.30	1.40	1.60	1.50	1.50
			Asbestos Lab:		COVENTRY					COVENTRY			COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total TPH >C6-C40	M	2670	mg/kg	10		[A] < 10					[A] 39			[A] < 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0			[A] < 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] 88			[A] < 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] 250			[A] < 1.0	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] 260			[A] < 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0			[A] < 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] 600			[A] < 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10		[A] < 10	[A] < 10	[A] < 10	[A] 600			[A] < 10	
Benzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0				[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Toluene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0				[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Ethylbenzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0				[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
m & p-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0				[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
o-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0				[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0				[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Naphthalene	M	2800	mg/kg	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
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.40	< 0.10	< 0.10	< 0.10	< 0.10	0.26	< 0.10		< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	0.13	< 0.10	< 0.10	< 0.10	< 0.10	0.12	< 0.10		< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	0.56	0.23	< 0.10	< 0.10	< 0.10	0.34	< 0.10		< 0.10	0.33
Pyrene	M	2800	mg/kg	0.10	0.51	0.30	< 0.10	< 0.10	< 0.10	0.39	< 0.10		< 0.10	0.32
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.24	0.16	< 0.10	< 0.10	< 0.10	0.14	< 0.10		< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	0.28	0.17	< 0.10	< 0.10	< 0.10	0.23	< 0.10		< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.45	< 0.10		< 0.10	< 0.10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL					**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609					**Chemtest Sample ID.:**	1376581	1376582	1376583	1376584	1376585	1376586	1376587	1376588	1376589	1376590
Order No.:					Client Sample Ref.:	AA152184	AA152185 AA152186	AA152173	AA152174	AA152175	AA162355	AA162356	AA152165	AA152393	AA152180
					Sample Location:	WS25	WS25	WS26	WS26	WS26	WS28	WS28	WS29	WS30	WS31
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.00	1.20	0.00	0.90	1.50	0.00	0.30	0.70	0.20	0.00
					Bottom Depth (m):	1.20	2.70	0.90	1.50	2.50	0.30	1.40	1.60	1.50	1.50
					Asbestos Lab:	COVENTRY					COVENTRY			COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**											
Benzo[k]fluoranthene	M	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.20	< 0.10		< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.39	< 0.10		< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	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
Benzo[g,h,i]perylene	M	2800	mg/kg	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
Total Of 17 PAH's	N	2800	mg/kg	2.0		2.1	< 2.0	< 2.0	< 2.0	< 2.0	2.5	< 2.0		< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010				[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010
PCB 52	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010				[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010
PCB 90+101	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010				[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010
PCB 118	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010				[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010
PCB 153	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010				[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010
PCB 138	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010				[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010
PCB 180	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010				[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10		[A] < 0.10	[A] < 0.10				[A] < 0.10	[A] < 0.10		[A] < 0.10	[A] < 0.10
Total Phenols	M	2920	mg/kg	0.10		< 0.10					< 0.10			< 0.10	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**	1376591	1376592	1376593	1376594	1376595	1376596	1376597	1376598	1376599
Order No.:				Client Sample Ref.:	AA152181	AA152169	AA152385	AA152387 AA152388	AA132821	AA162372	AA162373 AA162374	AA132817	AA132834
				Sample Location:	WS31	WS33	WS36	WS36	WS37	WS38	WS38	WS40	WS42
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	1.50	0.00	0.00	1.60	0.00	0.00	0.60	0.90	0.60
				Bottom Depth (m):	2.00	0.60	0.40	2.50	1.60	0.60	1.50	1.70	1.80
				Asbestos Lab:		COVENTRY	COVENTRY		COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A		-	-		-				
Asbestos Identification	U	2192		N/A		No Asbestos Detected	No Asbestos Detected		No Asbestos Detected				
Moisture	N	2030	%	0.020	22	25	19	17	25	21	25	21	16
Stones and Removed Materials	N	2030	%	0.020							< 0.020		
pH	M	2010		4.0		[A] 8.6	[A] 8.9		[A] 8.8				
pH (2.5:1)	N	2010		4.0								[A] 8.7	[A] 8.7
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		[A] 0.91	[A] 1.1		[A] 0.54				
Magnesium (Water Soluble)	N	2120	g/l	0.010								[A] < 0.010	[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010								[A] 0.028	[A] 0.025
Total Sulphur	M	2175	%	0.010								[A] < 0.010	[A] 0.018
Sulphur (Elemental)	M	2180	mg/kg	1.0		[A] 2.5	[A] 2.6		[A] 1.9				
Chloride (Water Soluble)	M	2220	g/l	0.010								[A] < 0.010	[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010								< 0.010	< 0.010
Cyanide (Total)	M	2300	mg/kg	0.50		[A] < 0.50	[A] < 0.50		[A] < 0.50				
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		[A] 8.2	[A] 15		[A] 5.7				
Ammonium (Water Soluble)	M	2220	g/l	0.01								< 0.01	< 0.01
Sulphate (Total)	U	2430	%	0.010		[A] 0.34	[A] 0.30		[A] 0.076				
Sulphate (Acid Soluble)	U	2430	%	0.010								[A] < 0.010	[A] 0.012
Arsenic	M	2450	mg/kg	1.0	11	8.1	10	7.1	8.4	7.2	7.9		
Barium	M	2450	mg/kg	10	28	150	46	26	61	14	76		
Beryllium	U	2450	mg/kg	1.0									
Cadmium	M	2450	mg/kg	0.10	7.4	0.59	0.72	2.0	1.4	1.9	2.1		
Chromium	M	2450	mg/kg	1.0	11	8.1	12	17	14	9.3	20		
Molybdenum	M	2450	mg/kg	2.0	8.9	< 2.0	< 2.0	4.4	2.2	2.6	2.5		
Antimony	N	2450	mg/kg	2.0	3.9	< 2.0	< 2.0	2.3	< 2.0	< 2.0	< 2.0		
Copper	M	2450	mg/kg	0.50	29	12	18	20	17	12	13		
Mercury	M	2450	mg/kg	0.10	< 0.10	0.10	< 0.10	< 0.10	0.11	< 0.10	< 0.10		
Nickel	M	2450	mg/kg	0.50	52	18	19	48	30	27	30		
Lead	M	2450	mg/kg	0.50	24	210	24	16	20	8.4	17		
Selenium	M	2450	mg/kg	0.20	2.6	0.59	0.32	6.5	0.55	0.22	0.70		
Vanadium	U	2450	mg/kg	5.0									
Zinc	M	2450	mg/kg	0.50	170	78	60	85	56	59	69		
Chromium (Trivalent)	N	2490	mg/kg	1.0		8.1	12		14				
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50		< 0.50				
Total Organic Carbon	M	2625	%	0.20	[A] 0.75	[A] 1.4	[A] 3.1	[A] 1.1	[A] 1.3	[A] 0.29	[A] 0.97		
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL		**Chemtest Job No.:**			22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609		**Chemtest Sample ID.:**			1376591	1376592	1376593	1376594	1376595	1376596	1376597	1376598	1376599
Order No.:		Client Sample Ref.:			AA152181	AA152169	AA152385	AA152387 AA152388	AA132821	AA162372	AA162373 AA162374	AA132817	AA132834
		Sample Location:			WS31	WS33	WS36	WS36	WS37	WS38	WS38	WS40	WS42
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			1.50	0.00	0.00	1.60	0.00	0.00	0.60	0.90	0.60
		Bottom Depth (m):			2.00	0.60	0.40	2.50	1.60	0.60	1.50	1.70	1.80
		Asbestos Lab:				COVENTRY	COVENTRY		COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total TPH >C6-C40	M	2670	mg/kg	10	[A] < 10			[A] < 10		[A] < 10	[A] < 10		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0		[A] < 5.0				
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0				
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0		[A] < 5.0				
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10	[A] < 10		[A] < 10				
Benzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		
Toluene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		
Ethylbenzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		
m & p-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		
o-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		
Naphthalene	M	2800	mg/kg	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		
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	0.37	1.2	< 0.10	< 0.10	< 0.10	< 0.10		
Pyrene	M	2800	mg/kg	0.10	< 0.10	0.26	1.1	< 0.10	< 0.10	< 0.10	< 0.10		
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	0.21	0.73	< 0.10	< 0.10	< 0.10	< 0.10		
Chrysene	M	2800	mg/kg	0.10	< 0.10	0.12	0.55	< 0.10	< 0.10	< 0.10	< 0.10		
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	0.99	< 0.10	< 0.10	< 0.10	< 0.10		

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL		**Chemtest Job No.:**			22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609		**Chemtest Sample ID.:**			1376591	1376592	1376593	1376594	1376595	1376596	1376597	1376598	1376599
Order No.:		Client Sample Ref.:			AA152181	AA152169	AA152385	AA152387 AA152388	AA132821	AA162372	AA162373 AA162374	AA132817	AA132834
		Sample Location:			WS31	WS33	WS36	WS36	WS37	WS38	WS38	WS40	WS42
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			1.50	0.00	0.00	1.60	0.00	0.00	0.60	0.90	0.60
		Bottom Depth (m):			2.00	0.60	0.40	2.50	1.60	0.60	1.50	1.70	1.80
		Asbestos Lab:				COVENTRY	COVENTRY		COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10		
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	0.83	< 0.10	< 0.10	< 0.10	< 0.10		
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	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		
Benzo[g,h,i]perylene	M	2800	mg/kg	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		
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	5.6	< 2.0	< 2.0	< 2.0	< 2.0		
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		
PCB 138	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		
PCB 180	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10		
Total Phenols	M	2920	mg/kg	0.10		< 0.10	< 0.10		< 0.10				

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**	1376600	1376601	1376602	1376603	1376604	1376605	1376606	1376607	1376608	1376609
Order No.:				Client Sample Ref.:	AA132827	AA132828	AA132837	AA162392	AA162393	AA162364	AA162365	AA162165	AA162166 AA162167	AA162156
				Sample Location:	WS43	WS43	WS44	WS45	WS45	WS46	WS46	WS47	WS47	WS48
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.00	0.60	0.60	0.00	0.60	0.00	0.80	0.00	0.90	0.00
				Bottom Depth (m):	0.60	1.80	1.50	0.60	1.70	0.80	1.70	0.90	2.90	0.70
				Asbestos Lab:	COVENTRY			COVENTRY						COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A	-			-						-
Asbestos Identification	U	2192		N/A	No Asbestos Detected			No Asbestos Detected						No Asbestos Detected
Moisture	N	2030	%	0.020	22	16	13	22	12	18	13	17	15	17
Stones and Removed Materials	N	2030	%	0.020										
pH	M	2010		4.0	[A] 8.4			[A] 8.4		[A] 8.4	[A] 8.6			[A] 8.3
pH (2.5:1)	N	2010		4.0			[A] 8.6				[A] 8.7			
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	[A] 0.49			[A] 0.65		[A] 0.69	[A] 0.76			[A] 0.77
Magnesium (Water Soluble)	N	2120	g/l	0.010			[A] < 0.010				[A] < 0.010			
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010			[A] 0.014				[A] 0.041			
Total Sulphur	M	2175	%	0.010			[A] 0.017				[A] 0.017			
Sulphur (Elemental)	M	2180	mg/kg	1.0	[A] 1.4			[A] 3.3						[A] 4.8
Chloride (Water Soluble)	M	2220	g/l	0.010			[A] < 0.010				[A] < 0.010			
Nitrate (Water Soluble)	N	2220	g/l	0.010			< 0.010				< 0.010			
Cyanide (Total)	M	2300	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50	[A] < 0.50			[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 7.1			[A] < 0.50						[A] 3.8
Ammonium (Water Soluble)	M	2220	g/l	0.01			< 0.01				< 0.01			
Sulphate (Total)	U	2430	%	0.010	[A] 0.087			[A] 0.052						[A] 0.13
Sulphate (Acid Soluble)	U	2430	%	0.010			[A] 0.021				[A] 0.052			
Arsenic	M	2450	mg/kg	1.0	10	15		11	23	17	15	15	14	16
Barium	M	2450	mg/kg	10	42	100		59	47	150	48	71	22	69
Beryllium	U	2450	mg/kg	1.0						1.3	< 1.0			
Cadmium	M	2450	mg/kg	0.10	1.4	2.4		2.7	4.0	2.7	3.1	2.4	5.0	2.0
Chromium	M	2450	mg/kg	1.0	14	14		20	18	21	14	19	18	17
Molybdenum	M	2450	mg/kg	2.0	3.4	7.0		4.4	6.0			6.1	7.8	3.4
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0		3.4	2.9			< 2.0	2.0	2.0
Copper	M	2450	mg/kg	0.50	18	24		27	37	72	20	23	26	39
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10		0.17	< 0.10	0.21	< 0.10	< 0.10	< 0.10	0.26
Nickel	M	2450	mg/kg	0.50	33	68		47	70	46	39	48	59	42
Lead	M	2450	mg/kg	0.50	19	17		89	25	100	13	19	13	51
Selenium	M	2450	mg/kg	0.20	0.75	1.3		0.89	0.51	1.1	0.37	0.46	2.4	0.65
Vanadium	U	2450	mg/kg	5.0						35	31			
Zinc	M	2450	mg/kg	0.50	76	89		92	120	180	86	97	120	100
Chromium (Trivalent)	N	2490	mg/kg	1.0	14			20		21	14			17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50			< 0.50		< 0.50	< 0.50			< 0.50
Total Organic Carbon	M	2625	%	0.20	[A] 0.88	[A] 0.34		[A] 2.0	[A] 0.28	[A] 2.0	[A] < 0.20	[A] 0.66	[A] 0.68	[A] 1.6
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10		< 10	< 10			< 10	< 10	< 10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL		Chemtest Job No.:			22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609		Chemtest Sample ID.:			1376600	1376601	1376602	1376603	1376604	1376605	1376606	1376607	1376608	1376609
Order No.:		Client Sample Ref.:			AA132827	AA132828	AA132837	AA162392	AA162393	AA162364	AA162365	AA162165	AA162166 AA162167	AA162156
		Sample Location:			WS43	WS43	WS44	WS45	WS45	WS46	WS46	WS47	WS47	WS48
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	0.60	0.60	0.00	0.60	0.00	0.80	0.00	0.90	0.00
		Bottom Depth (m):			0.60	1.80	1.50	0.60	1.70	0.80	1.70	0.90	2.90	0.70
		Asbestos Lab:			COVENTRY			COVENTRY						COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total TPH >C6-C40	M	2670	mg/kg	10		[A] < 10			[A] < 10			[A] < 10	[A] < 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0			[A] < 5.0		[A] < 5.0	[A] < 5.0			[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0			[A] < 5.0		[A] < 5.0	[A] < 5.0			[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10			[A] < 10		[A] < 10	[A] < 10			[A] < 10
Benzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0			[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.18	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.15	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.60	0.41	< 0.10	< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.28	0.19	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		0.19	< 0.10	1.1	0.45	< 0.10	< 0.10	0.41
Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		0.16	< 0.10	1.1	0.39	< 0.10	< 0.10	0.47
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.86	0.27	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.65	0.21	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.83	0.15	< 0.10	< 0.10	< 0.10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376600	1376601	1376602	1376603	1376604	1376605	1376606	1376607	1376608	1376609
Order No.:			Client Sample Ref.:		AA132827	AA132828	AA132837	AA162392	AA162393	AA162364	AA162365	AA162165	AA162166 AA162167	AA162156
			Sample Location:		WS43	WS43	WS44	WS45	WS45	WS46	WS46	WS47	WS47	WS48
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	0.60	0.60	0.00	0.60	0.00	0.80	0.00	0.90	0.00
			Bottom Depth (m):		0.60	1.80	1.50	0.60	1.70	0.80	1.70	0.90	2.90	0.70
			Asbestos Lab:		COVENTRY			COVENTRY						COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.30	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.88	0.11	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.43	< 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	0.16	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.48	< 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
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0		< 2.0	< 2.0	8.2	2.3	< 2.0	< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 138	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 180	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010			[A] < 0.010	[A] < 0.010	[A] < 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	[A] < 0.10	[A] < 0.10		[A] < 0.10	[A] < 0.10			[A] < 0.10	[A] < 0.10	[A] < 0.10
Total Phenols	M	2920	mg/kg	0.10	< 0.10			< 0.10						< 0.10

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**	1376610	1376611	1376612	1376613	1376614	1376615	1376616	1376617	1376618
Order No.:				Client Sample Ref.:	AA162157 AA162158	AA152195	AA152196	AA162385	AA152187	AA152188	AA152197	AA152198	AA152376
				Sample Location:	WS48	WS50	WS50	WS52	WS53	WS53	WS55	WS55	WS58
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.70	0.00	0.50	0.30	0.00	0.80	0.00	0.50	1.30
				Bottom Depth (m):	2.00	0.50	2.00	1.10	0.80	2.20	0.50	1.10	2.10
				Asbestos Lab:		COVENTRY		COVENTRY	COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A		-		-	-				
Asbestos Identification	U	2192		N/A		No Asbestos Detected		No Asbestos Detected	No Asbestos Detected				
Moisture	N	2030	%	0.020	14	17	12	11	16	16	15	16	24
Stones and Removed Materials	N	2030	%	0.020									
pH	M	2010		4.0		[A] 8.4		[A] 8.5	[A] 8.3				
pH (2.5:1)	N	2010		4.0	[A] 8.5		[A] 8.5			[A] 9.1			[A] 8.5
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		[A] 0.43		[A] 0.45	[A] 0.74				
Magnesium (Water Soluble)	N	2120	g/l	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	[A] 0.028		[A] 0.017			[A] 0.23			[A] 0.029
Total Sulphur	M	2175	%	0.010	[A] 0.024		[A] 0.020			[A] 0.11			[A] 0.042
Sulphur (Elemental)	M	2180	mg/kg	1.0		[A] 1.6		[A] < 1.0	[A] 21				
Chloride (Water Soluble)	M	2220	g/l	0.010	[A] < 0.010		[A] < 0.010			[A] 0.021			[A] 0.030
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010		< 0.010			0.018			< 0.010
Cyanide (Total)	M	2300	mg/kg	0.50		[A] < 0.50		[A] < 0.50	[A] < 0.50				
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		[A] 7.5		[A] 8.4	[A] 9.4				
Ammonium (Water Soluble)	M	2220	g/l	0.01	< 0.01		< 0.01			< 0.01			< 0.01
Sulphate (Total)	U	2430	%	0.010		[A] 0.13		[A] 0.17	[A] 0.19				
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.033		[A] 0.053			[A] 0.18			[A] 0.020
Arsenic	M	2450	mg/kg	1.0	22	17	15	17	24		18	15	
Barium	M	2450	mg/kg	10	41	65	28	38	110		83	68	
Beryllium	U	2450	mg/kg	1.0									
Cadmium	M	2450	mg/kg	0.10	2.9	2.4	2.2	3.8	2.5		2.4	2.2	
Chromium	M	2450	mg/kg	1.0	22	17	13	18	22		21	19	
Molybdenum	M	2450	mg/kg	2.0	7.0	4.5	6.2	9.3	4.4		4.2	4.0	
Antimony	N	2450	mg/kg	2.0	2.9	2.4	2.0	3.6	2.5		2.9	2.2	
Copper	M	2450	mg/kg	0.50	35	49	27	30	65		48	36	
Mercury	M	2450	mg/kg	0.10	< 0.10	0.15	< 0.10	< 0.10	0.18		0.25	0.13	
Nickel	M	2450	mg/kg	0.50	88	51	58	61	47		42	44	
Lead	M	2450	mg/kg	0.50	19	65	16	17	60		70	41	
Selenium	M	2450	mg/kg	0.20	1.5	0.53	0.54	1.3	1.1		0.90	0.86	
Vanadium	U	2450	mg/kg	5.0									
Zinc	M	2450	mg/kg	0.50	81	150	65	130	150		100	100	
Chromium (Trivalent)	N	2490	mg/kg	1.0		17		18	22				
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50		< 0.50	< 0.50				
Total Organic Carbon	M	2625	%	0.20	[A] 0.48	[A] 1.8	[A] 0.37	[A] 0.67	[A] 3.5		[A] 1.9	[A] 1.4	
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10	< 10	260	< 10		< 10	< 10	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376610	1376611	1376612	1376613	1376614	1376615	1376616	1376617	1376618
Order No.:			Client Sample Ref.:		AA162157 AA162158	AA152195	AA152196	AA162385	AA152187	AA152188	AA152197	AA152198	AA152376
			Sample Location:		WS48	WS50	WS50	WS52	WS53	WS53	WS55	WS55	WS58
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.70	0.00	0.50	0.30	0.00	0.80	0.00	0.50	1.30
			Bottom Depth (m):		2.00	0.50	2.00	1.10	0.80	2.20	0.50	1.10	2.10
			Asbestos Lab:			COVENTRY		COVENTRY	COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total TPH >C6-C40	M	2670	mg/kg	10	[A] < 10		[A] < 10				[A] < 10	[A] < 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		[A] < 1.0		[A] 260	[A] < 1.0				
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0		[A] 260	[A] < 5.0				
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0		[A] < 1.0		[A] 520	[A] < 1.0				
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0				
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0		[A] 520	[A] < 5.0				
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10		[A] 780	[A] < 10				
Benzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	
Toluene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	
Ethylbenzene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	
m & p-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	
o-Xylene	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.75		0.31	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.16		0.12	< 0.10	
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.2		0.31	< 0.10	
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.5		0.18	< 0.10	
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	9.9		1.5	< 0.10	
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	3.0		0.42	< 0.10	
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	0.38	< 0.10	< 0.10	24		2.8	0.57	
Pyrene	M	2800	mg/kg	0.10	< 0.10	0.47	< 0.10	< 0.10	20		2.6	0.47	
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	11		1.2	0.26	
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	11		1.2	0.31	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	15		1.3	< 0.10	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376610	1376611	1376612	1376613	1376614	1376615	1376616	1376617	1376618
Order No.:			Client Sample Ref.:		AA162157 AA162158	AA152195	AA152196	AA162385	AA152187	AA152188	AA152197	AA152198	AA152376
			Sample Location:		WS48	WS50	WS50	WS52	WS53	WS53	WS55	WS55	WS58
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.70	0.00	0.50	0.30	0.00	0.80	0.00	0.50	1.30
			Bottom Depth (m):		2.00	0.50	2.00	1.10	0.80	2.20	0.50	1.10	2.10
			Asbestos Lab:			COVENTRY		COVENTRY	COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	5.6		0.46	< 0.10	
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	13		0.95	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	8.1		< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.4		< 0.10	< 0.10	
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	7.5		< 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	
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	130		13	< 2.0	
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 138	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	
PCB 180	U	2815	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10		[A] < 0.10	[A] < 0.10	
Total Phenols	M	2920	mg/kg	0.10		< 0.10		< 0.10	< 0.10				

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL				**Chemtest Job No.:**	22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609				**Chemtest Sample ID.:**	1376619	1376620	1376621	1376622	1376630	1376631
Order No.:				Client Sample Ref.:	AA132823	AA132824	AA132819	AA132820	AA152170	AA152171
				Sample Location:	WS59	WS59	WS60	WS60	WS33	WS33
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.00	0.60	0.00	1.00	0.60	1.40
				Bottom Depth (m):	0.60	1.50	1.00	2.30	1.40	2.40
				Asbestos Lab:	COVENTRY		COVENTRY			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-		-			
Asbestos Identification	U	2192		N/A	No Asbestos Detected		No Asbestos Detected			
Moisture	N	2030	%	0.020	16	12	16	17	20	23
Stones and Removed Materials	N	2030	%	0.020						
pH	M	2010		4.0	[A] 8.4		[A] 8.4			
pH (2.5:1)	N	2010		4.0		[A] 8.6			[A] 8.3	[A] 8.4
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	[A] < 0.40		[A] 1.3			
Magnesium (Water Soluble)	N	2120	g/l	0.010		[A] < 0.010			[A] < 0.010	[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		[A] 0.034			[A] 0.023	[A] 0.079
Total Sulphur	M	2175	%	0.010		[A] 0.18			[A] 0.031	[A] 0.031
Sulphur (Elemental)	M	2180	mg/kg	1.0	[A] 2.9		[A] 1.4			
Chloride (Water Soluble)	M	2220	g/l	0.010		[A] 0.010			[A] 0.023	[A] 0.039
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010			< 0.010	< 0.010
Cyanide (Total)	M	2300	mg/kg	0.50	[A] < 0.50		[A] < 0.50			
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 6.4		[A] 31			
Ammonium (Water Soluble)	M	2220	g/l	0.01		< 0.01			< 0.01	< 0.01
Sulphate (Total)	U	2430	%	0.010	[A] 0.29		[A] 0.063			
Sulphate (Acid Soluble)	U	2430	%	0.010		[A] 0.044			[A] 0.057	[A] 0.027
Arsenic	M	2450	mg/kg	1.0	8.7		19	16	10	
Barium	M	2450	mg/kg	10	37		65	13	50	
Beryllium	U	2450	mg/kg	1.0						
Cadmium	M	2450	mg/kg	0.10	0.87		2.7	5.1	1.5	
Chromium	M	2450	mg/kg	1.0	13		21	8.4	17	
Molybdenum	M	2450	mg/kg	2.0	2.1		5.5	9.8	3.6	
Antimony	N	2450	mg/kg	2.0	< 2.0		2.5	3.7	< 2.0	
Copper	M	2450	mg/kg	0.50	14		38	29	20	
Mercury	M	2450	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	
Nickel	M	2450	mg/kg	0.50	23		70	62	40	
Lead	M	2450	mg/kg	0.50	12		30	40	19	
Selenium	M	2450	mg/kg	0.20	0.63		0.34	1.1	0.47	
Vanadium	U	2450	mg/kg	5.0						
Zinc	M	2450	mg/kg	0.50	36		89	170	73	
Chromium (Trivalent)	N	2490	mg/kg	1.0	13		21			
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50			
Total Organic Carbon	M	2625	%	0.20	[A] 1.1		[A] 0.43	[A] 0.51	[A] 1.1	
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10		< 10	< 10	< 10	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376619	1376620	1376621	1376622	1376630	1376631
Order No.:			Client Sample Ref.:		AA132823	AA132824	AA132819	AA132820	AA152170	AA152171
			Sample Location:		WS59	WS59	WS60	WS60	WS33	WS33
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	0.60	0.00	1.00	0.60	1.40
			Bottom Depth (m):		0.60	1.50	1.00	2.30	1.40	2.40
			Asbestos Lab:		COVENTRY		COVENTRY			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Total TPH >C6-C40	M	2670	mg/kg	10				[A] < 10	[A] < 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0			
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10		[A] < 10			
Benzene	M	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	
Toluene	M	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	
Ethylbenzene	M	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	
m & p-Xylene	M	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	
o-Xylene	M	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	
Naphthalene	M	2800	mg/kg	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	
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	
Fluorene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	
Phenanthrene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	
Anthracene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	
Fluoranthene	M	2800	mg/kg	0.10	0.86		< 0.10	< 0.10	< 0.10	
Pyrene	M	2800	mg/kg	0.10	0.70		< 0.10	< 0.10	< 0.10	
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.30		< 0.10	< 0.10	< 0.10	
Chrysene	M	2800	mg/kg	0.10	0.33		< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.53		< 0.10	< 0.10	< 0.10	

Results - Soil

Project: 23784 Clonburris Housing Development

Client: IGSL			**Chemtest Job No.:**		22-06471	22-06471	22-06471	22-06471	22-06471	22-06471
Quotation No.: Q22-26609			**Chemtest Sample ID.:**		1376619	1376620	1376621	1376622	1376630	1376631
Order No.:			Client Sample Ref.:		AA132823	AA132824	AA132819	AA132820	AA152170	AA152171
			Sample Location:		WS59	WS59	WS60	WS60	WS33	WS33
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	0.60	0.00	1.00	0.60	1.40
			Bottom Depth (m):		0.60	1.50	1.00	2.30	1.40	2.40
			Asbestos Lab:		COVENTRY		COVENTRY			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.14		< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.41		< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	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	
Benzo[g,h,i]perylene	M	2800	mg/kg	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	
Total Of 17 PAH's	N	2800	mg/kg	2.0	3.3		< 2.0	< 2.0	< 2.0	
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 138	U	2815	mg/kg	0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	
PCB 180	U	2815	mg/kg	0.010	[A] < 0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	[A] < 0.10		[A] < 0.10	[A] < 0.10	[A] < 0.10	
Total Phenols	M	2920	mg/kg	0.10	< 0.10		< 0.10			

Results - Single Stage WAC

Project: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376552						
Sample Ref:	AA1623670						
Sample ID:							
Sample Location:	WS01						
Top Depth(m):	0.00						
Bottom Depth(m):	0.40						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.2	3	5	6
Loss On Ignition	2610	M	%	4.8	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.016	--	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	1455	U	0.0030	0.030	0.5	2	25
Barium	1455	U	0.007	0.068	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0035	0.035	0.5	10	70
Copper	1455	U	0.017	0.17	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0076	0.077	0.5	10	30
Nickel	1455	U	0.0055	0.056	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0018	0.018	0.06	0.7	5
Selenium	1455	U	0.0022	0.022	0.1	0.5	7
Zinc	1455	U	0.005	0.052	4	50	200
Chloride	1220	U	3.0	30	800	15000	25000
Fluoride	1220	U	0.29	2.9	10	150	500
Sulphate	1220	U	45	450	1000	20000	50000
Total Dissolved Solids	1020	N	150	1500	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	13	130	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	22

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376555						
Sample Ref:	AA162152						
Sample ID:							
Sample Location:	WS05						
Top Depth(m):	0.00						
Bottom Depth(m):	0.80						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.2	3	5	6
Loss On Ignition	2610	M	%	5.1	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.021	--	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	1455	U	< 0.0002	< 0.0002	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0099	0.099	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	4	50	200
Chloride	1220	U	4.0	40	800	15000	25000
Fluoride	1220	U	0.47	4.7	10	150	500
Sulphate	1220	U	2.8	28	1000	20000	50000
Total Dissolved Solids	1020	N	65	640	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	15	150	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	28

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376557						
Sample Ref:	AA162159						
Sample ID:							
Sample Location:	WS07						
Top Depth(m):	0.00						
Bottom Depth(m):	0.40						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.87	3	5	6
Loss On Ignition	2610	M	%	4.2	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.038	--	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	1455	U	0.0026	0.026	0.5	2	25
Barium	1455	U	0.007	0.067	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0021	0.021	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0015	0.016	0.5	10	30
Nickel	1455	U	0.0036	0.036	0.4	10	40
Lead	1455	U	0.0018	0.018	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	0.0006	0.0059	0.1	0.5	7
Zinc	1455	U	0.013	0.13	4	50	200
Chloride	1220	U	2.5	25	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	98	970	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	26	260	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	20

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376560						
Sample Ref:	AA152395				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:							
Sample Location:	WS09						
Top Depth(m):	0.00						
Bottom Depth(m):	0.40						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	M	%	[A] 0.99	3	5	6
Loss On Ignition	2610	M	%	8.9	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	2.7	100	--	--
pH	2010	M		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.036	--	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	1455	U	0.0025	0.025	0.5	2	25
Barium	1455	U	0.20	2.0	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0022	0.022	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.023	0.23	0.5	10	30
Nickel	1455	U	0.0037	0.037	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0014	0.014	0.06	0.7	5
Selenium	1455	U	0.0011	0.011	0.1	0.5	7
Zinc	1455	U	0.011	0.11	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.31	3.1	10	150	500
Sulphate	1220	U	31	310	1000	20000	50000
Total Dissolved Solids	1020	N	170	1700	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	34	340	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	27

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376566						
Sample Ref:	AA162163						
Sample ID:							
Sample Location:	WS14						
Top Depth(m):	0.00						
Bottom Depth(m):	0.90						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.81	3	5	6
Loss On Ignition	2610	M	%	4.4	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	2.1	100	--	--
pH	2010	M		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.041	--	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	1455	U	0.0023	0.023	0.5	2	25
Barium	1455	U	0.007	0.069	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0013	0.013	0.5	10	70
Copper	1455	U	0.0033	0.033	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.017	0.17	0.5	10	30
Nickel	1455	U	0.0027	0.027	0.4	10	40
Lead	1455	U	0.0008	0.0082	0.5	10	50
Antimony	1455	U	0.0012	0.012	0.06	0.7	5
Selenium	1455	U	0.0027	0.027	0.1	0.5	7
Zinc	1455	U	0.007	0.068	4	50	200
Chloride	1220	U	2.1	21	800	15000	25000
Fluoride	1220	U	0.40	4.0	10	150	500
Sulphate	1220	U	28	280	1000	20000	50000
Total Dissolved Solids	1020	N	100	1000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	26	260	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	18

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376568						
Sample Ref:	AA162366						
Sample ID:							
Sample Location:	WS15						
Top Depth(m):	0.00						
Bottom Depth(m):	0.60						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.57	3	5	6
Loss On Ignition	2610	M	%	2.5	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.024	--	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	1455	U	0.0005	0.0054	0.5	2	25
Barium	1455	U	0.010	0.10	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0006	0.0056	0.5	10	30
Nickel	1455	U	0.0007	0.0073	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	0.003	0.027	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.082	< 1.0	10	150	500
Sulphate	1220	U	1.9	19	1000	20000	50000
Total Dissolved Solids	1020	N	26	260	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.3	93	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	21

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376574						
Sample Ref:	AA152176				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:							
Sample Location:	WS19						
Top Depth(m):	0.00						
Bottom Depth(m):	0.50						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	M	%	[A] 1.1	3	5	6
Loss On Ignition	2610	M	%	4.2	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.031	--	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	1455	U	0.0003	0.0032	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.014	0.14	0.5	10	30
Nickel	1455	U	0.0006	0.0061	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.36	3.6	10	150	500
Sulphate	1220	U	3.2	32	1000	20000	50000
Total Dissolved Solids	1020	N	59	580	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	17	170	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	23

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376579						
Sample Ref:	AA162376						
Sample ID:							
Sample Location:	WS23						
Top Depth(m):	0.30						
Bottom Depth(m):	0.80						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.5	3	5	6
Loss On Ignition	2610	M	%	5.2	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.038	--	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	1455	U	< 0.0002	< 0.0002	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0024	0.024	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	0.003	0.030	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.41	4.1	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	65	650	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	17	170	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376580						
Sample Ref:	AA152382 AA152383						
Sample ID:							
Sample Location:	WS24						
Top Depth(m):	0.00						
Bottom Depth(m):	1.10						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.73	3	5	6
Loss On Ignition	2610	M	%	3.6	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.029	--	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	1455	U	0.0006	0.0057	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0006	0.0062	0.5	10	70
Copper	1455	U	0.0010	0.0098	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0046	0.046	0.5	10	30
Nickel	1455	U	0.0017	0.017	0.4	10	40
Lead	1455	U	0.0007	0.0071	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	0.008	0.083	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.67	6.7	10	150	500
Sulphate	1220	U	5.6	56	1000	20000	50000
Total Dissolved Solids	1020	N	72	710	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	19	190	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376581						
Sample Ref:	AA152184						
Sample ID:							
Sample Location:	WS25						
Top Depth(m):	0.00						
Bottom Depth(m):	1.20						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.9	3	5	6
Loss On Ignition	2610	M	%	5.8	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	2.1	100	--	--
pH	2010	M		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.072	--	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	1455	U	0.0008	0.0082	0.5	2	25
Barium	1455	U	0.006	0.060	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0024	0.024	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0038	0.038	0.5	10	30
Nickel	1455	U	0.0010	0.010	0.4	10	40
Lead	1455	U	0.0011	0.011	0.5	10	50
Antimony	1455	U	0.0007	0.0068	0.06	0.7	5
Selenium	1455	U	0.0006	0.0062	0.1	0.5	7
Zinc	1455	U	0.006	0.063	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.48	4.8	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	72	710	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	24	240	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	26

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376586						
Sample Ref:	AA162355						
Sample ID:							
Sample Location:	WS28						
Top Depth(m):	0.00						
Bottom Depth(m):	0.30						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 2.8	3	5	6
Loss On Ignition	2610	M	%	4.8	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] 600	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	2.5	100	--	--
pH	2010	M		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.014	--	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	1455	U	0.0019	0.019	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.013	0.13	0.5	10	70
Copper	1455	U	0.0030	0.030	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0030	0.030	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0024	0.024	0.06	0.7	5
Selenium	1455	U	0.0009	0.0091	0.1	0.5	7
Zinc	1455	U	0.005	0.045	4	50	200
Chloride	1220	U	1.8	18	800	15000	25000
Fluoride	1220	U	0.24	2.4	10	150	500
Sulphate	1220	U	26	260	1000	20000	50000
Total Dissolved Solids	1020	N	72	710	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	8.8	88	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376589						
Sample Ref:	AA152393						
Sample ID:							
Sample Location:	WS30						
Top Depth(m):	0.20						
Bottom Depth(m):	1.50						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 3.3	3	5	6
Loss On Ignition	2610	M	%	7.9	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.016	--	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	1455	U	0.0006	0.0061	0.5	2	25
Barium	1455	U	0.010	0.10	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0005	0.0050	0.5	10	70
Copper	1455	U	0.0027	0.027	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0060	0.060	0.5	10	30
Nickel	1455	U	0.0011	0.011	0.4	10	40
Lead	1455	U	0.0083	0.083	0.5	10	50
Antimony	1455	U	0.0021	0.021	0.06	0.7	5
Selenium	1455	U	0.0006	0.0060	0.1	0.5	7
Zinc	1455	U	0.005	0.053	4	50	200
Chloride	1220	U	2.0	20	800	15000	25000
Fluoride	1220	U	0.55	5.5	10	150	500
Sulphate	1220	U	15	150	1000	20000	50000
Total Dissolved Solids	1020	N	100	1000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	23	230	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	27

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376592						
Sample Ref:	AA152169						
Sample ID:							
Sample Location:	WS33						
Top Depth(m):	0.00						
Bottom Depth(m):	0.60						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.4	3	5	6
Loss On Ignition	2610	M	%	4.4	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.075	--	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	1455	U	0.0003	0.0029	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0023	0.023	0.5	10	30
Nickel	1455	U	0.0007	0.0070	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.46	4.6	10	150	500
Sulphate	1220	U	2.0	20	1000	20000	50000
Total Dissolved Solids	1020	N	59	580	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	13	130	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	25

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376593						
Sample Ref:	AA152385						
Sample ID:							
Sample Location:	WS36						
Top Depth(m):	0.00						
Bottom Depth(m):	0.40						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 3.1	3	5	6
Loss On Ignition	2610	M	%	7.4	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	5.6	100	--	--
pH	2010	M		8.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.020	--	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	1455	U	0.0013	0.013	0.5	2	25
Barium	1455	U	0.020	0.20	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0007	0.0069	0.5	10	70
Copper	1455	U	0.0068	0.068	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0058	0.058	0.5	10	30
Nickel	1455	U	0.0021	0.021	0.4	10	40
Lead	1455	U	0.0015	0.015	0.5	10	50
Antimony	1455	U	0.0011	0.011	0.06	0.7	5
Selenium	1455	U	0.0006	0.0061	0.1	0.5	7
Zinc	1455	U	0.008	0.084	4	50	200
Chloride	1220	U	2.0	20	800	15000	25000
Fluoride	1220	U	0.48	4.8	10	150	500
Sulphate	1220	U	5.8	58	1000	20000	50000
Total Dissolved Solids	1020	N	85	840	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	26	260	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376595						
Sample Ref:	AA132821						
Sample ID:							
Sample Location:	WS37						
Top Depth(m):	0.00						
Bottom Depth(m):	1.60						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.3	3	5	6
Loss On Ignition	2610	M	%	5.4	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.030	--	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	1455	U	0.0009	0.0094	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0029	0.029	0.5	10	70
Copper	1455	U	0.0013	0.013	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0003	0.0034	0.5	10	30
Nickel	1455	U	0.0016	0.016	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	0.003	0.035	4	50	200
Chloride	1220	U	3.3	33	800	15000	25000
Fluoride	1220	U	0.18	1.8	10	150	500
Sulphate	1220	U	1.6	16	1000	20000	50000
Total Dissolved Solids	1020	N	20	190	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.2	62	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	25

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376600						
Sample Ref:	AA132827						
Sample ID:							
Sample Location:	WS43						
Top Depth(m):	0.00						
Bottom Depth(m):	0.60						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.88	3	5	6
Loss On Ignition	2610	M	%	4.9	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.023	--	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	1455	U	0.0030	0.030	0.5	2	25
Barium	1455	U	0.006	0.064	20	100	300
Cadmium	1455	U	0.00024	0.0024	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0022	0.022	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0020	0.020	0.5	10	30
Nickel	1455	U	0.0029	0.029	0.4	10	40
Lead	1455	U	0.0024	0.024	0.5	10	50
Antimony	1455	U	0.0005	0.0053	0.06	0.7	5
Selenium	1455	U	0.0008	0.0077	0.1	0.5	7
Zinc	1455	U	0.006	0.056	4	50	200
Chloride	1220	U	1.5	15	800	15000	25000
Fluoride	1220	U	0.13	1.3	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	91	900	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	24	240	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	22

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376603						
Sample Ref:	AA162392						
Sample ID:							
Sample Location:	WS45						
Top Depth(m):	0.00						
Bottom Depth(m):	0.60						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 2.0	3	5	6
Loss On Ignition	2610	M	%	5.9	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.015	--	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	1455	U	0.0047	0.047	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0008	0.0083	0.5	10	70
Copper	1455	U	0.0035	0.035	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0031	0.031	0.5	10	30
Nickel	1455	U	0.0016	0.016	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0008	0.0081	0.06	0.7	5
Selenium	1455	U	0.0011	0.011	0.1	0.5	7
Zinc	1455	U	0.003	0.026	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.18	1.8	10	150	500
Sulphate	1220	U	15	150	1000	20000	50000
Total Dissolved Solids	1020	N	78	780	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	17	170	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	22

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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376609						
Sample Ref:	AA162156						
Sample ID:							
Sample Location:	WS48						
Top Depth(m):	0.00						
Bottom Depth(m):	0.70						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.6	3	5	6
Loss On Ignition	2610	M	%	5.7	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.037	--	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	1455	U	0.0005	0.0049	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0008	0.0078	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0055	0.055	0.5	10	30
Nickel	1455	U	0.0009	0.0086	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	0.0006	0.0064	0.1	0.5	7
Zinc	1455	U	0.004	0.036	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.55	5.5	10	150	500
Sulphate	1220	U	5.4	54	1000	20000	50000
Total Dissolved Solids	1020	N	78	780	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	16	160	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376611						
Sample Ref:	AA152195				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:							
Sample Location:	WS50						
Top Depth(m):	0.00						
Bottom Depth(m):	0.50						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	M	%	[A] 1.8	3	5	6
Loss On Ignition	2610	M	%	4.8	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.059	--	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	1455	U	0.0002	0.0023	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.014	0.14	0.5	10	30
Nickel	1455	U	0.0006	0.0056	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.33	3.3	10	150	500
Sulphate	1220	U	2.3	23	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	13	130	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376613						
Sample Ref:	AA162385						
Sample ID:							
Sample Location:	WS52						
Top Depth(m):	0.30						
Bottom Depth(m):	1.10						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.67	3	5	6
Loss On Ignition	2610	M	%	3.6	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] 780	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.010	--	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	1455	U	0.0002	0.0021	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0012	0.012	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	< 0.0002	< 0.0002	0.5	10	30
Nickel	1455	U	0.0006	0.0060	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	0.005	0.053	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.15	1.5	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	13	130	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.1	< 50	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376614						
Sample Ref:	AA152187						
Sample ID:							
Sample Location:	WS53						
Top Depth(m):	0.00						
Bottom Depth(m):	0.80						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 3.5	3	5	6
Loss On Ignition	2610	M	%	6.1	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	130	100	--	--
pH	2010	M		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.029	--	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	1455	U	0.0043	0.043	0.5	2	25
Barium	1455	U	0.007	0.065	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0008	0.0077	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.016	0.16	0.5	10	30
Nickel	1455	U	0.0017	0.017	0.4	10	40
Lead	1455	U	0.0005	0.0052	0.5	10	50
Antimony	1455	U	0.0006	0.0063	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.24	2.4	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	59	580	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	70	700	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376619						
Sample Ref:	AA132823						
Sample ID:							
Sample Location:	WS59						
Top Depth(m):	0.00						
Bottom Depth(m):	0.60						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 1.1	3	5	6
Loss On Ignition	2610	M	%	4.3	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	3.3	100	--	--
pH	2010	M		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.029	--	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	1455	U	0.0027	0.027	0.5	2	25
Barium	1455	U	0.006	0.058	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0013	0.013	0.5	10	70
Copper	1455	U	0.0045	0.045	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0091	0.091	0.5	10	30
Nickel	1455	U	0.0043	0.043	0.4	10	40
Lead	1455	U	0.0016	0.016	0.5	10	50
Antimony	1455	U	0.0010	0.0099	0.06	0.7	5
Selenium	1455	U	0.0024	0.024	0.1	0.5	7
Zinc	1455	U	0.011	0.12	4	50	200
Chloride	1220	U	1.7	17	800	15000	25000
Fluoride	1220	U	0.37	3.7	10	150	500
Sulphate	1220	U	17	170	1000	20000	50000
Total Dissolved Solids	1020	N	85	840	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	23	230	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: 23784 Clonburris Housing Development

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-06471						
Chemtest Sample ID:	1376621						
Sample Ref:	AA132819						
Sample ID:							
Sample Location:	WS60						
Top Depth(m):	0.00						
Bottom Depth(m):	1.00						
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.43	3	5	6
Loss On Ignition	2610	M	%	2.1	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	M		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.051	--	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	1455	U	0.0033	0.033	0.5	2	25
Barium	1455	U	< 0.005	< 0.0005	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0011	0.011	0.5	10	70
Copper	1455	U	0.0035	0.035	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0062	0.062	0.5	10	30
Nickel	1455	U	0.0020	0.020	0.4	10	40
Lead	1455	U	0.0006	0.0064	0.5	10	50
Antimony	1455	U	0.0012	0.012	0.06	0.7	5
Selenium	1455	U	0.0022	0.022	0.1	0.5	7
Zinc	1455	U	0.004	0.043	4	50	200
Chloride	1220	U	1.5	15	800	15000	25000
Fluoride	1220	U	0.26	2.6	10	150	500
Sulphate	1220	U	24	240	1000	20000	50000
Total Dissolved Solids	1020	N	85	840	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	18	180	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.

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:
1376552	AA1623670		WS01		A	Amber Glass 250ml
1376552	AA1623670		WS01		A	Plastic Tub 500g
1376553	AA162371		WS01		A	Amber Glass 250ml
1376553	AA162371		WS01		A	Plastic Tub 500g
1376554	AA162155		WS03		A	Amber Glass 250ml
1376554	AA162155		WS03		A	Plastic Tub 500g
1376555	AA162152		WS05		A	Amber Glass 250ml
1376555	AA162152		WS05		A	Plastic Tub 500g
1376556	AA162153		WS05		A	Amber Glass 250ml
1376556	AA162153		WS05		A	Plastic Tub 500g
1376557	AA162159		WS07		A	Amber Glass 250ml
1376557	AA162159		WS07		A	Plastic Tub 500g
1376558	AA162160		WS07		A	Amber Glass 250ml
1376558	AA162160		WS07		A	Plastic Tub 500g
1376559	AA152194		WS08		A	Amber Glass 250ml
1376559	AA152194		WS08		A	Plastic Tub 500g
1376560	AA152395		WS09		A	Amber Glass 250ml
1376560	AA152395		WS09		A	Plastic Tub 500g
1376561	AA152396 AA152397		WS09		A	Amber Glass 250ml
1376561	AA152396 AA152397		WS09		A	Plastic Tub 500g
1376562	AA152400		WS10		A	Amber Glass 250ml
1376562	AA152400		WS10		A	Plastic Tub 500g

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:
1376563	AA152398		WS12		A	Amber Glass 250ml
1376563	AA152398		WS12		A	Plastic Tub 500g
1376564	AA152189		WS13		A	Amber Glass 250ml
1376564	AA152189		WS13		A	Plastic Tub 500g
1376565	AA152190 AA152191		WS13		A	Amber Glass 250ml
1376565	AA152190 AA152191		WS13		A	Plastic Tub 500g
1376566	AA162163		WS14		A	Amber Glass 250ml
1376566	AA162163		WS14		A	Plastic Tub 500g
1376567	AA162164		WS14		A	Amber Glass 250ml
1376567	AA162164		WS14		A	Plastic Tub 500g
1376568	AA162366		WS15		A	Amber Glass 250ml
1376569	AA162367 AA162368		WS15		A	Amber Glass 250ml
1376569	AA162367 AA162368		WS15		A	Plastic Tub 500g
1376570	AA152168		WS16		A	Amber Glass 250ml
1376571	AA162168		WS18		A	Amber Glass 250ml
1376571	AA162168		WS18		A	Plastic Tub 500g
1376572	AA162169		WS18		A	Amber Glass 250ml
1376572	AA162169		WS18		A	Plastic Tub 500g
1376573	AA162170		WS18		A	Amber Glass 250ml
1376573	AA162170		WS18		A	Plastic Tub 500g
1376574	AA152176		WS19		A	Amber Glass 250ml
1376574	AA152176		WS19		A	Plastic Tub 500g

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:
1376575	AA152177		WS19		A	Amber Glass 250ml
1376575	AA152177		WS19		A	Plastic Tub 500g
1376576	AA152178 AA152179		WS19		A	Amber Glass 250ml
1376576	AA152178 AA152179		WS19		A	Plastic Tub 500g
1376577	AA162382		WS22		A	Amber Glass 250ml
1376577	AA162382		WS22		A	Plastic Tub 500g
1376578	AA162383		WS22		A	Amber Glass 250ml
1376578	AA162383		WS22		A	Plastic Tub 500g
1376579	AA162376		WS23		A	Amber Glass 250ml
1376579	AA162376		WS23		A	Plastic Tub 500g
1376580	AA152382 AA152383		WS24		A	Amber Glass 250ml
1376580	AA152382 AA152383		WS24		A	Plastic Tub 500g
1376581	AA152184		WS25		A	Amber Glass 250ml
1376581	AA152184		WS25		A	Plastic Tub 500g
1376582	AA152185 AA152186		WS25		A	Amber Glass 250ml
1376582	AA152185 AA152186		WS25		A	Plastic Tub 500g
1376583	AA152173		WS26		A	Amber Glass 250ml
1376583	AA152173		WS26		A	Plastic Tub 500g
1376584	AA152174		WS26		A	Amber Glass 250ml
1376584	AA152174		WS26		A	Plastic Tub 500g
1376585	AA152175		WS26		A	Amber Glass 250ml
1376585	AA152175		WS26		A	Plastic Tub 500g

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:
1376586	AA162355		WS28		A	Amber Glass 250ml
1376587	AA162356		WS28		A	Amber Glass 250ml
1376587	AA162356		WS28		A	Plastic Tub 500g
1376588	AA152165		WS29		A	Amber Glass 250ml
1376588	AA152165		WS29		A	Plastic Tub 500g
1376589	AA152393		WS30		A	Amber Glass 250ml
1376589	AA152393		WS30		A	Plastic Tub 500g
1376590	AA152180		WS31		A	Amber Glass 250ml
1376590	AA152180		WS31		A	Plastic Tub 500g
1376591	AA152181		WS31		A	Amber Glass 250ml
1376591	AA152181		WS31		A	Plastic Tub 500g
1376592	AA152169		WS33		A	Amber Glass 250ml
1376592	AA152169		WS33		A	Plastic Tub 500g
1376593	AA152385		WS36		A	Amber Glass 250ml
1376593	AA152385		WS36		A	Plastic Tub 500g
1376594	AA152387 AA152388		WS36		A	Amber Glass 250ml
1376594	AA152387 AA152388		WS36		A	Plastic Tub 500g
1376595	AA132821		WS37		A	Amber Glass 250ml
1376595	AA132821		WS37		A	Plastic Tub 500g
1376596	AA162372		WS38		A	Amber Glass 250ml
1376596	AA162372		WS38		A	Plastic Tub 500g
1376597	AA162373 AA162374		WS38		A	Amber Glass 250ml

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:
1376597	AA162373 AA162374		WS38		A	Plastic Tub 500g
1376598	AA132817		WS40		A	Amber Glass 250ml
1376598	AA132817		WS40		A	Plastic Tub 500g
1376599	AA132834		WS42		A	Amber Glass 250ml
1376599	AA132834		WS42		A	Plastic Tub 500g
1376600	AA132827		WS43		A	Amber Glass 250ml
1376600	AA132827		WS43		A	Plastic Tub 500g
1376601	AA132828		WS43		A	Amber Glass 250ml
1376601	AA132828		WS43		A	Plastic Tub 500g
1376602	AA132837		WS44		A	Amber Glass 250ml
1376602	AA132837		WS44		A	Plastic Tub 500g
1376603	AA162392		WS45		A	Amber Glass 250ml
1376603	AA162392		WS45		A	Plastic Tub 500g
1376604	AA162393		WS45		A	Amber Glass 250ml
1376604	AA162393		WS45		A	Plastic Tub 500g
1376605	AA162364		WS46		A	Amber Glass 250ml
1376605	AA162364		WS46		A	Plastic Tub 500g
1376606	AA162365		WS46		A	Amber Glass 250ml
1376606	AA162365		WS46		A	Plastic Tub 500g
1376607	AA162165		WS47		A	Amber Glass 250ml
1376607	AA162165		WS47		A	Plastic Tub 500g
1376608	AA162166 AA162167		WS47		A	Amber Glass 250ml
1376608	AA162166 AA162167		WS47		A	Plastic Tub 500g

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:
1376609	AA162156		WS48		A	Amber Glass 250ml
1376609	AA162156		WS48		A	Plastic Tub 500g
1376610	AA162157 AA162158		WS48		A	Amber Glass 250ml
1376610	AA162157 AA162158		WS48		A	Plastic Tub 500g
1376611	AA152195		WS50		A	Amber Glass 250ml
1376611	AA152195		WS50		A	Plastic Tub 500g
1376612	AA152196		WS50		A	Amber Glass 250ml
1376612	AA152196		WS50		A	Plastic Tub 500g
1376613	AA162385		WS52		A	Amber Glass 250ml
1376613	AA162385		WS52		A	Plastic Tub 500g
1376614	AA152187		WS53		A	Amber Glass 250ml
1376614	AA152187		WS53		A	Plastic Tub 500g
1376615	AA152188		WS53		A	Amber Glass 250ml
1376615	AA152188		WS53		A	Plastic Tub 500g
1376616	AA152197		WS55		A	Amber Glass 250ml
1376616	AA152197		WS55		A	Plastic Tub 500g
1376617	AA152198		WS55		A	Amber Glass 250ml
1376617	AA152198		WS55		A	Plastic Tub 500g
1376618	AA152376		WS58		A	Amber Glass 250ml
1376618	AA152376		WS58		A	Plastic Tub 500g
1376619	AA132823		WS59		A	Amber Glass 250ml
1376619	AA132823		WS59		A	Plastic Tub 500g

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:
1376620	AA132824		WS59		A	Amber Glass 250ml
1376620	AA132824		WS59		A	Plastic Tub 500g
1376621	AA132819		WS60		A	Amber Glass 250ml
1376621	AA132819		WS60		A	Plastic Tub 500g
1376622	AA132820		WS60		A	Amber Glass 250ml
1376622	AA132820		WS60		A	Plastic Tub 500g
1376630	AA152170		WS33		A	Amber Glass 250ml
1376630	AA152170		WS33		A	Plastic Tub 500g
1376631	AA152171		WS33		A	Amber Glass 250ml
1376631	AA152171		WS33		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
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.
1455	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.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurememrnt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline 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

Test Methods

SOP	Title	Parameters included	Method summary
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
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) ICES7Congeners 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 TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest 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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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 10

As-Surveyed Site Plan

ExpertGPS

23784 Clonburris AGI As-Surveyed Plan

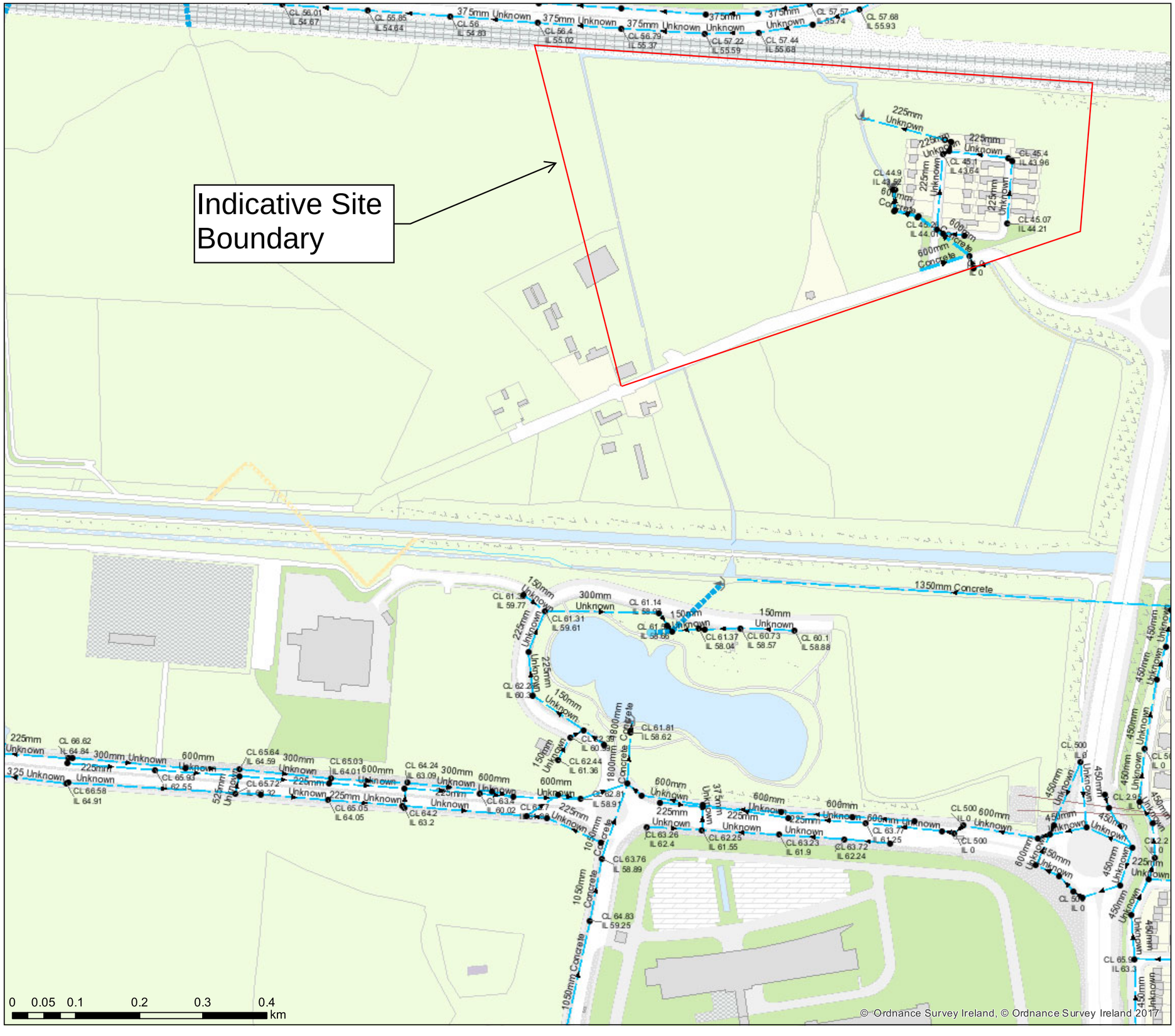
25 0 25 50 75 100 125 150 175 200 225 250 m

Scale: 1 : 1500.

MN
2°04'

Appendix B – SDCC Existing Records

Irish Water Web Map



UISCE ÉIREANN : IRISH WATER

Print Date: 04/05/2021

Printed by:Irish Water

Water Distribution Network
- Water Treatment Plant
- Water Pump Station
- Storage Cell/Tower
- Dosing Point
- Meter Station
- Abstraction Point
- Telemetry Kiosk

Reservoir
- Potable
- Raw Water

Water Distribution Mains
- Irish Water
- Private

Trunk Water Mains
- Irish Water
- Private

Water Lateral Lines
- Irish Water
- Non IW
- Water Casings
- Water Abandoned Lines
- Boundary Meter
- Bulk/Check Meter
- Group Scheme
- Source Meter
- Waste Meter
- Unknown Meter ; Other Meter
- Non-Return
- PRV
- PSV
- Sluice Line Valve Open/Closed
- Butterfly Line Valve Open/Closed
- Sluice Boundary Valve Open/Closed
- Butterfly Boundary Valve Open/Closed
- Scour Valves
- Single Air Control Valve
- Double Air Control Valve
- Water Stop Valves
- Water Service Connections
- Water Distribution Chambers
- Water Network Junctions
- Pressure Monitoring Point
- Fire Hydrant
- Fire Hydrant/Washout

Water Fittings
- Cap
- Reducer
- Tap
- Other Fittings

Sewer Foul Combined Network
- Waste Water Treatment Plant
- Waste Water Pump station

Sewer Mains Irish Water
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow

Sewer Mains Private
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow
- Sewer Lateral Lines
- Sewer Casings

Sewer Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Discharge Type
- Outfall
- Overflow
- Soakaway
- Standard Outlet
- Other; Unknown

Cleanout Type
- Rodding Eye
- Flushing Structure
- Other; Unknown

Sewer Inlets
- Catchpit
- Gully
- Standard
- Other; Unknown

Sewer Fittings
- Vent/Col
- Other; Unknown

Storm Water Network

Surface Water Mains
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

Inlet Type
- Gully
- Standard
- Other; Unknown

Storm Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown
- Storm Culverts
- Storm Clean Outs
- Stormwater Chambers

Discharge Type
- Outfall
- Overflow
- Soakaway
- Other; Unknown

Gas Networks Ireland
- Transmission High Pressure Gasline
- Distribution Medium Pressure Gasline
- Distribution Low Pressure Gasline

ESB Networks

ESB HV Lines
- HV Underground
- HV Overhead
- HV Abandoned

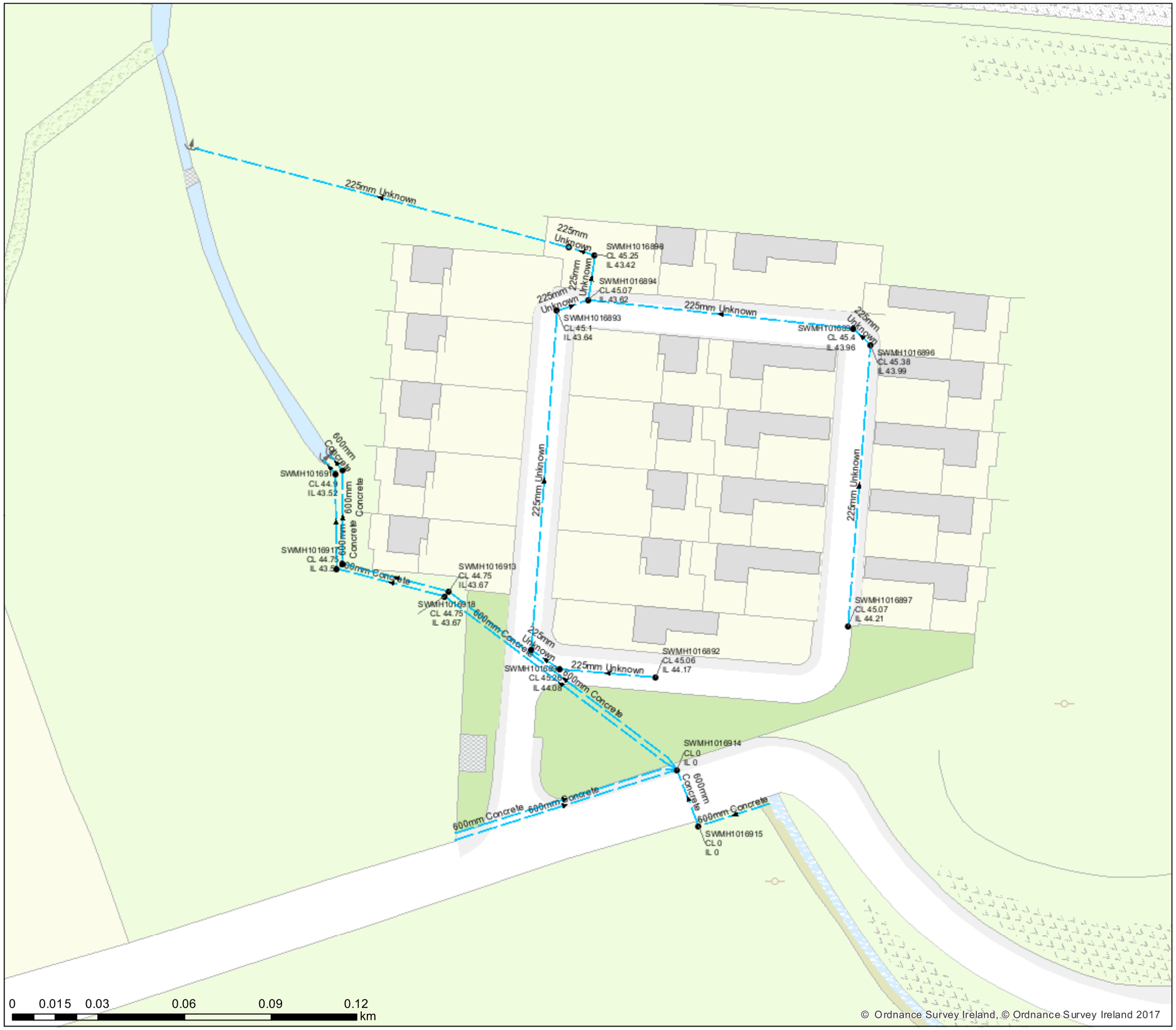
ESB MVLV Lines
- MV Overhead Three Phase
- MV Overhead Single Phase
- LV Overhead Three Phase
- LV Overhead Single Phase
- MVLV Underground
- Abandoned

Non Service Categories
- Proposed
- Under Construction
- Out of Service
- Decommissioned

Water Non Service Assets
- Water Point Feature
- Water Pipe
- Water Structure

Waste Non Service Assets
- Waste Point Feature
- Sewer
- Waste Structure

Irish Water Web Map



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- Private

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- Irish Water
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Water Lateral Lines
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- Boundary Meter
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Sewer Mains Private
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow
- Sewer Lateral Lines
- Sewer Casings

Sewer Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Discharge Type
- Outfall
- Overflow
- Soakaway
- Standard Outlet
- Other; Unknown

Cleanout Type
- Rodding Eye
- Flushing Structure
- Other; Unknown

Sewer Inlets
- Catchpit
- Gully
- Standard
- Other; Unknown

Sewer Fittings
- Vent/Col
- Other; Unknown

Storm Water Network

Surface Water Mains
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

Inlet Type
- Gully
- Standard
- Other; Unknown

Storm Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown
- Storm Culverts
- Storm Clean Outs
- Stormwater Chambers

Discharge Type
- Outfall
- Overflow
- Soakaway
- Other; Unknown

Gas Networks Ireland
- Transmission High Pressure Gasline
- Distribution Medium Pressure Gasline
- Distribution Low Pressure Gasline

ESB Networks

ESB HV Lines
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- HV Overhead
- HV Abandoned

ESB MVLV Lines
- MV Overhead Three Phase
- MV Overhead Single Phase
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- LV Overhead Single Phase
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- Abandoned

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- Water Point Feature
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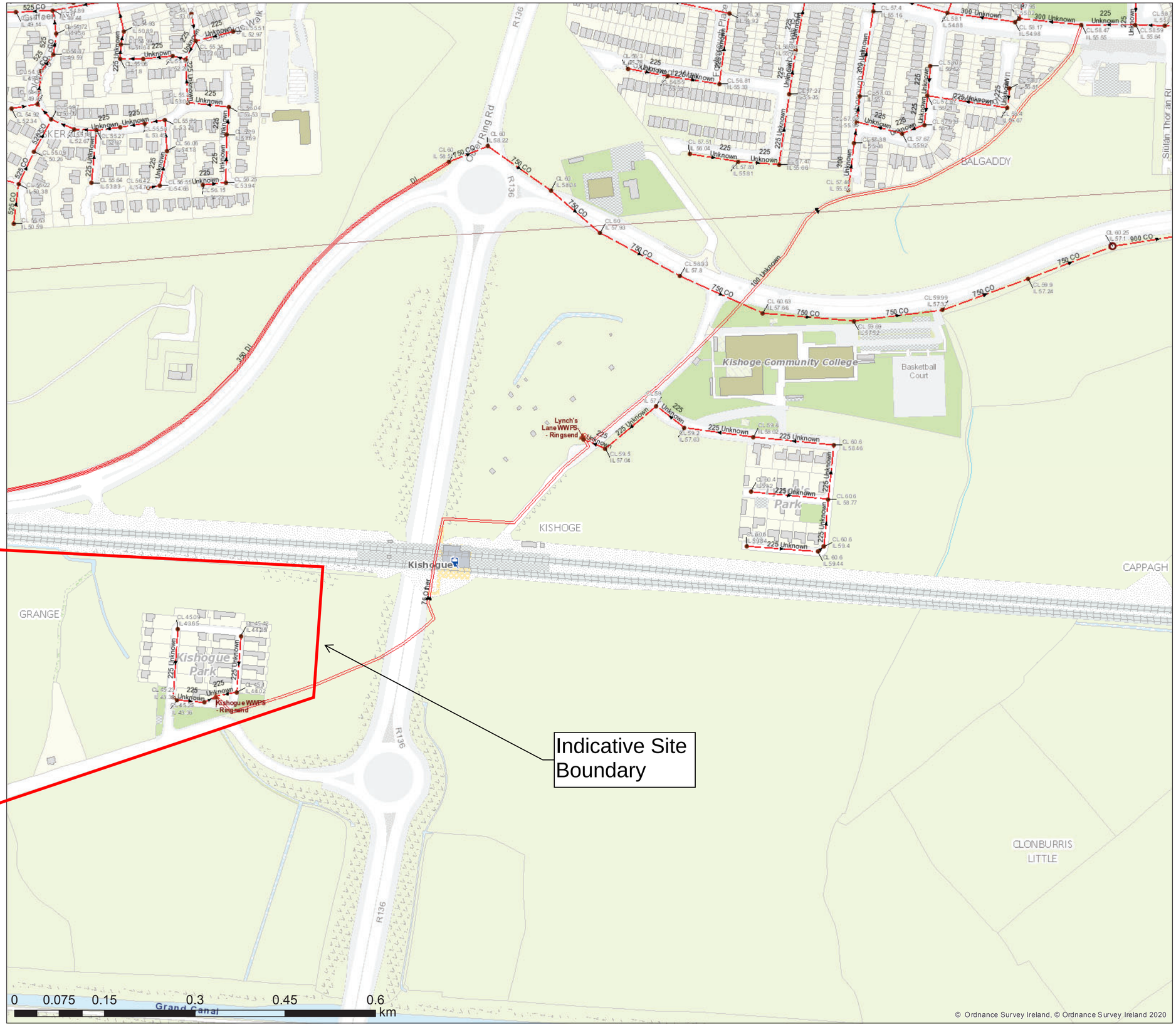
Irish Water Web Map



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- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow

Sewer Mains Private
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow
- Sewer Lateral Lines
- Sewer Casings

Sewer Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Discharge Type
- Outfall
- Overflow
- Soakaway
- Standard Outlet
- Other; Unknown

Cleanout Type
- Rodding Eye
- Flushing Structure
- Other; Unknown

Sewer Inlets
- Catchpit
- Gully
- Standard
- Other; Unknown

Sewer Fittings
- Vent/Col
- Other; Unknown

Storm Water Network

Surface Water Mains
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

Inlet Type
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- Cascade
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- Hydrobrake
- Other; Unknown
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- Storm Clean Outs
- Stormwater Chambers

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- Overflow
- Soakaway
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Gas Networks Ireland
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Water Non Service Assets
- Water Point Feature
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- Water Structure

Waste Non Service Assets
- Waste Point Feature
- Sewer
- Waste Structure

Appendix C – Interception & Treatment Provision

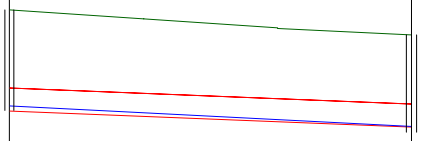
Overall Site - Interception & Treatment Provision				
Contributing Area (m^2) *	Interception		Treatment	
	Required (m^3) *	Provided (m^3)	Required (m^3) **	Provided (m^3)
49800	199.2	39.7	597.6	869.4

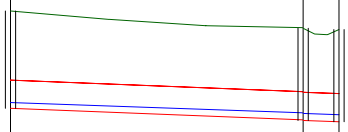
* Excludes; existing accommodation (0.8 ha), gardens and public open spaces
** Based on the first 5mm of rainfall, over 80% of the impermeable area.
*** Based on the first 15mm of rainfall, over 80% of the impermeable area.

Proposed Interception & Treatment						
SuDS Type (m^2)	SuDS Area (m^2)	Depth: Substrate/ Sub-base/ Bedding Layer (mm)	Porosity (%)	Interception (mm/m^3)	Interception Provided (m^3)	Treatment Provided (m^3)
Extensive Green Roof *	1485.0	80.0	0.2	5.0	7.425	23.8
Bioretention †	5235.0	300.0	0.3	3.0	15.705	471.2
Permeable Paving ††	3309.0	350.0	0.3	5.0	16.545	347.4
200 m Swale †††	1200.0	900.0	0.3	3.0	3.6	27.0
				Total Provision:	**39.7**	**869.4**

Note: The assumption of 30% porosity is based on Section 30.4.1 of the CIRIA SuDS Manual C753, for aggregates and inorganic clays.
* 5 mm of interception on extensive green roof is achieved 80% of the during summer months, as per CIRIA SuDS Manual C753, Section 12.4.2. Treatment volume is calculated based on assumed porosity and substrate depth.
† Interception via evapotranspiration: Box 24.3 of the CIRIA C753 SuDS Manual, states 3 mm/day is approximately the free surface evapotranspiration rate in mid-summer in the UK. The interception provided may be greater than this, if there is a large soil moisture deficit. Treatment volume is calculated based on assumed porosity and substrate depth.
†† Based on 5 mm interception for the area of permeable paving, as per Table 24.6 of the CIRIA C753 SuDS Manual, provided sufficient maintenance is carried out. Treatment volume is calculated based on assumed porosity and sub-base depth.
††† Interception via evapotranspiration: Box 24.3 of the CIRIA C753 SuDS Manual, states 3 mm/day is approximately the free surface evapotranspiration rate in mid-summer in the UK. Swale channel filter medium assumed as 200 m x 0.5 m x 0.5 m, used in calculating treatment, multiplied by porosity.
Note:
- Interception is most critical during summer months, as prolonged dry periods leave rivers most vulnerable to pollution, as flows are low and dilution is reduced.
- Box 24.3 of the CIRIA C753 SuDS Manual also states that water at depths greater than 250 mm is much less likely to be lost through evapotranspiration. The above assumptions where water may be below 250 mm are based on CIRIA C753 SuDS Manual guidance; permeable paving interception volume of 5 mm (for 80% of summer events and 50% of winter events) is based on Table 24.6 and the evapotranspiration rate is based on Box 24.3 for free surface evapotranspiration.

Appendix D – Surface Water Network Results & Longsections

MH Name		S1			S2
Hor Scale 1000 Ver Scale 100 Datum (m)56.000					
PN		S1.000			
Dia (mm)		300			
Slope (1:X)		245.0			
Cover Level (m)		59.333	59.212	59.092	59.000
Invert Level (m)		58.000		57.783	
Length (m)		53.206			

MH Name		S2				S4
Hor Scale 1000 Ver Scale 100 Datum (m)56.000						
PN		S1.001				
Dia (mm)		375				
Slope (1:X)		245.0				
Cover Level (m)		59.000	58.886	58.799	58.770	58.750
Invert Level (m)		57.708		57.550	57.550	
Length (m)		38.770				

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - Scotland and Ireland

Return Period (years)	5	PIMP (%)	100
M5-60 (mm)	16.900	Add Flow / Climate Change (%)	0
Ratio R	0.276	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	53.206	0.217	245.0	0.154	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	38.770	0.158	245.0	0.095	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.002	4.788	0.020	245.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.003	56.906	0.232	245.0	0.104	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.004	10.723	0.128	83.9	0.006	0.00	0.0	0.600	o	375	Pipe/Conduit	
S2.000	28.690	0.180	159.4	0.061	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.005	49.679	0.250	198.7	0.120	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.006	47.876	0.147	325.0	0.124	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.007	75.300	0.350	215.1	0.231	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.89	58.000	0.154	0.0	0.0	0.0	1.00	70.7	20.8
S1.001	50.00	6.45	57.708	0.249	0.0	0.0	0.0	1.15	127.4	33.7
S1.002	50.00	6.52	57.550	0.249	0.0	0.0	0.0	1.15	127.4	33.7
S1.003	50.00	7.34	57.530	0.353	0.0	0.0	0.0	1.15	127.4	47.8
S1.004	50.00	7.43	57.298	0.359	0.0	0.0	0.0	1.98	218.6	48.6
S2.000	50.00	5.46	57.500	0.061	0.0	0.0	0.0	1.03	41.1	8.3
S1.005	50.00	8.08	57.170	0.541	0.0	0.0	0.0	1.28	141.6	73.2
S1.006	50.00	8.87	56.920	0.665	0.0	0.0	0.0	1.00	110.4	90.0
S1.007	47.88	9.78	56.698	0.896	0.0	0.0	0.0	1.38	219.8	116.1

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S3.000	41.130	0.242	170.0	0.144	5.00	0.0	0.600	o	225	Pipe/Conduit	
S3.001	51.526	0.303	170.0	0.109	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.008	36.439	0.135	269.9	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.000	61.230	0.405	151.0	0.115	5.00	0.0	0.600	o	225	Pipe/Conduit	
S4.001	41.488	0.296	140.0	0.083	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.002	41.380	0.169	244.3	0.090	0.00	0.0	0.600	o	300	Pipe/Conduit	
S4.003	44.540	0.188	236.3	0.058	0.00	0.0	0.600	o	300	Pipe/Conduit	
S4.004	31.238	0.065	479.1	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S5.000	36.600	0.289	126.7	0.016	5.00	0.0	0.600	o	150	Pipe/Conduit	
S5.001	49.465	0.291	170.1	0.010	0.00	0.0	0.600	o	150	Pipe/Conduit	
S5.002	47.432	0.279	170.0	0.011	0.00	0.0	0.600	o	150	Pipe/Conduit	
S5.003	47.445	0.279	170.0	0.011	0.00	0.0	0.600	o	150	Pipe/Conduit	
S5.004	23.910	0.251	95.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S4.005	57.749	0.100	577.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S4.006	37.377	0.100	373.8	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.007	14.639	0.060	245.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S3.000	50.00	5.69	57.150	0.144	0.0	0.0	0.0	1.00	39.8	19.4
S3.001	50.00	6.40	56.833	0.252	0.0	0.0	0.0	1.20	85.0	34.2
S1.008	46.78	10.27	56.348	1.148	0.0	0.0	0.0	1.23	196.0	145.4
S4.000	50.00	5.96	58.400	0.115	0.0	0.0	0.0	1.06	42.2	15.5
S4.001	50.00	6.59	57.995	0.197	0.0	0.0	0.0	1.10	43.9	26.7
S4.002	50.00	7.28	57.623	0.287	0.0	0.0	0.0	1.00	70.8	38.9
S4.003	50.00	8.01	57.454	0.345	0.0	0.0	0.0	1.02	72.0	46.7
S4.004	50.00	8.74	57.265	0.345	0.0	0.0	0.0	0.71	50.3	46.7
S5.000	50.00	5.68	58.700	0.016	0.0	0.0	0.0	0.89	15.8	2.2
S5.001	50.00	6.76	58.411	0.026	0.0	0.0	0.0	0.77	13.6	3.5
S5.002	50.00	7.79	58.120	0.037	0.0	0.0	0.0	0.77	13.6	5.0
S5.003	50.00	8.82	57.841	0.048	0.0	0.0	0.0	0.77	13.6	6.5
S5.004	49.26	9.20	57.562	0.048	0.0	0.0	0.0	1.03	18.2	6.5
S4.005	45.90	10.69	57.200	0.393	0.0	0.0	0.0	0.65	45.7«	48.8
S4.006	50.00	5.93	57.100	0.000	2.0	0.0	0.0	0.67	26.7	2.0
S4.007	50.00	6.17	56.925	0.000	2.0	0.0	0.0	1.00	70.7	2.0

From raingarden, to remain as shallow as possible to reduce attenuation depth

Swale pipe. Silt will be filtered out before entering perforated pipe.

Attenuation (Swale & Basin)

Midpoint
Alencon Link
Basingstoke, RG21 7PP

Date 13/04/2022 15:28 | Designed by Dara.Magee
File Clonburris.MDX | Checked by
Innovyze | Network 2020.1

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.009	14.547	0.177	82.0	0.107	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.000	42.285	0.160	265.0	0.074	5.00	0.0	0.600	o	225	Pipe/Conduit	
S6.001	7.335	0.028	262.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.002	66.251	0.250	265.1	0.124	0.00	0.0	0.600	o	300	Pipe/Conduit	
S7.000	42.983	0.436	98.6	0.112	5.00	0.0	0.600	o	225	Pipe/Conduit	
S6.003	41.430	0.207	200.0	0.089	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.010	29.178	0.058	500.0	0.083	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.011	18.305	0.037	500.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S8.000	24.089	0.142	170.0	0.042	5.00	0.0	0.600	o	225	Pipe/Conduit	
S8.001	67.990	0.278	245.0	0.171	0.00	0.0	0.600	o	300	Pipe/Conduit	
S8.002	6.837	0.028	245.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S9.000	41.762	0.246	170.0	0.053	5.00	0.0	0.600	o	225	Pipe/Conduit	
S9.001	6.664	0.125	53.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S8.003	72.027	0.332	216.9	0.150	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.009	46.55	10.38	56.213	1.255	2.0	0.0	0.0	2.25	357.3	160.2
S6.000	50.00	5.88	57.000	0.074	0.0	0.0	0.0	0.80	31.7	10.0
S6.001	50.00	6.03	56.840	0.074	0.0	0.0	0.0	0.80	31.9	10.0
S6.002	50.00	7.18	56.737	0.198	0.0	0.0	0.0	0.96	67.9	26.8
S7.000	50.00	5.54	56.950	0.112	0.0	0.0	0.0	1.32	52.3	15.1
S6.003	50.00	7.81	56.439	0.399	0.0	0.0	0.0	1.11	78.3	54.0
S1.010	45.62	10.83	55.885	1.736	2.0	0.0	0.0	1.08	306.0	216.5
S1.011	45.05	11.11	55.827	1.736	2.0	0.0	0.0	1.08	306.0	216.5
S8.000	50.00	5.40	57.000	0.042	0.0	0.0	0.0	1.00	39.8	5.6
S8.001	50.00	6.53	56.783	0.213	0.0	0.0	0.0	1.00	70.7	28.8
S8.002	50.00	6.65	56.506	0.213	0.0	0.0	0.0	1.00	70.7	28.8
S9.000	50.00	5.70	57.000	0.053	0.0	0.0	0.0	1.00	39.8	7.1
S9.001	50.00	5.76	56.754	0.053	0.0	0.0	0.0	1.79	71.3	7.1
S8.003	50.00	7.78	56.478	0.415	0.0	0.0	0.0	1.06	75.2	56.2

Constraint. Needs to remain flat to retain outfall IL above Regional Pond TWL.

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S10.000	55.157	0.225	245.0	0.229	5.00	0.0	0.600	o	300	Pipe/Conduit	
S10.001	79.376	0.234	339.2	0.332	0.00	0.0	0.600	o	375	Pipe/Conduit	
S10.002	6.590	0.019	345.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S8.004	43.662	0.088	496.2	0.096	0.00	0.0	0.600	o	525	Pipe/Conduit	
S8.005	35.726	0.072	496.2	0.130	0.00	0.0	0.600	o	525	Pipe/Conduit	
S8.006	16.343	0.033	495.2	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
S11.000	43.780	0.365	120.0	0.039	5.00	0.0	0.600	o	225	Pipe/Conduit	
S11.001	83.759	0.600	139.6	0.208	0.00	0.0	0.600	o	300	Pipe/Conduit	
S12.000	54.360	0.320	170.0	0.145	5.00	0.0	0.600	o	225	Pipe/Conduit	
S13.000	27.411	0.161	170.3	0.054	5.00	0.0	0.600	o	225	Pipe/Conduit	
S13.001	31.097	0.183	170.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S12.001	26.000	0.153	170.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S14.000	81.209	0.478	170.0	0.152	5.00	0.0	0.600	o	225	Pipe/Conduit	
S15.000	44.067	0.259	170.0	0.022	5.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S10.000	50.00	5.92	56.780	0.229	0.0	0.0	0.0	1.00	70.7	30.9
S10.001	50.00	7.27	56.480	0.560	0.0	0.0	0.0	0.98	108.0	75.9
S10.002	50.00	7.39	56.095	0.560	0.0	0.0	0.0	0.97	107.1	75.9
S8.004	50.00	8.51	55.921	1.072	0.0	0.0	0.0	1.00	216.2	145.1
S8.005	49.51	9.10	55.833	1.202	0.0	0.0	0.0	1.00	216.2	161.1
S8.006	48.84	9.37	55.761	1.202	0.0	0.0	0.0	1.00	216.4	161.1
S11.000	50.00	5.61	56.800	0.039	0.0	0.0	0.0	1.19	47.4	5.3
S11.001	50.00	6.66	56.360	0.247	0.0	0.0	0.0	1.33	93.9	33.4
S12.000	50.00	5.91	57.000	0.145	0.0	0.0	0.0	1.00	39.8	19.7
S13.000	50.00	5.46	57.300	0.054	0.0	0.0	0.0	1.00	39.7	7.3
S13.001	50.00	5.98	57.139	0.054	0.0	0.0	0.0	1.00	39.8	7.3
S12.001	50.00	6.41	56.680	0.199	0.0	0.0	0.0	1.00	39.8	26.9
S14.000	50.00	6.35	57.000	0.152	0.0	0.0	0.0	1.00	39.8	20.6
S15.000	50.00	5.73	56.800	0.022	0.0	0.0	0.0	1.00	39.8	2.9

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S14.001	23.159	0.136	170.0	0.026	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S14.001	50.00	6.74	56.522	0.200	0.0	0.0	0.0	1.00	39.8	27.1

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.011	S	57.859	55.790	0.000	0	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S8.006	S	58.277	55.728	0.000	0	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S11.001	S	58.388	55.760	0.000	0	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S12.001	S	58.478	56.527	0.000	0	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S14.001	S	58.358	56.386	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	9
Number of Online Controls	5	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	5	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	16.900	Storm Duration (mins)	30
Ratio R	0.276		

Online Controls for Storm

Orifice Manhole: S18, DS/PN: S5.001, Volume (m³): 1.8

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 58.411

Orifice Manhole: S19, DS/PN: S5.002, Volume (m³): 2.0

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 58.120

Orifice Manhole: S20, DS/PN: S5.003, Volume (m³): 2.0

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 57.841

Orifice Manhole: S21, DS/PN: S5.004, Volume (m³): 1.9

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 57.562

Orifice Manhole: S23, DS/PN: S4.006, Volume (m³): 10.1

Diameter (m) 0.045 Discharge Coefficient 0.600 Invert Level (m) 57.100

Storage Structures for Storm

Cellular Storage Manhole: S13, DS/PN: S4.001

Invert Level (m) 57.995 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	250.0	0.0	0.351	0.0	0.0
0.350	250.0	0.0			

Cellular Storage Manhole: S14, DS/PN: S4.002

Invert Level (m) 57.698 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	150.0	0.0	0.401	0.0	0.0
0.400	150.0	0.0			

Cellular Storage Manhole: S15, DS/PN: S4.003

Invert Level (m) 57.454 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	100.0	0.0	0.401	0.0	0.0
0.400	100.0	0.0			

Cellular Storage Manhole: S16, DS/PN: S4.004

Invert Level (m) 57.265 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	60.0	0.0	0.501	0.0	0.0
0.500	60.0	0.0			

Cellular Storage Manhole: S18, DS/PN: S5.001

Invert Level (m) 58.411 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Cellular Storage Manhole: S18, DS/PN: S5.001

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	60.0	0.0	0.501	0.0	0.0
0.500	60.0	0.0			

Cellular Storage Manhole: S19, DS/PN: S5.002

Invert Level (m) 58.120 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	60.0	0.0	0.501	0.0	0.0
0.500	60.0	0.0			

Cellular Storage Manhole: S20, DS/PN: S5.003

Invert Level (m) 57.841 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	60.0	0.0	0.501	0.0	0.0
0.500	60.0	0.0			

Cellular Storage Manhole: S21, DS/PN: S5.004

Invert Level (m) 57.562 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.40
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	60.0	0.0	0.501	0.0	0.0
0.500	60.0	0.0			

Tank or Pond Manhole: S23, DS/PN: S4.006

Invert Level (m) 57.100

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	600.0	0.350	600.0	0.351	0.0

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	9
Number of Online Controls	5	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.276
Region	Scotland and Ireland	Cv (Summer)	0.750
M5-60 (mm)	16.900	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	20, 20, 20

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Winter	100	+20%					58.279
S1.001	S2	15 Winter	100	+20%	100/15 Winter				58.191
S1.002	S3	15 Winter	100	+20%	100/15 Summer				58.147
S1.003	S4	15 Winter	100	+20%	100/15 Summer				58.134
S1.004	S6	15 Winter	100	+20%	100/15 Summer				58.035
S2.000	S7	15 Winter	100	+20%	100/15 Summer				58.039
S1.005	S8	15 Winter	100	+20%	30/15 Summer				58.002
S1.006	S9	15 Winter	100	+20%	30/15 Summer				57.785
S1.007	S11	30 Winter	100	+20%	100/15 Summer				57.497
S3.000	S12	15 Winter	100	+20%	30/15 Summer				57.681
S3.001	S13	15 Winter	100	+20%	100/15 Summer				57.372
S1.008	S12	15 Winter	100	+20%	30/15 Summer				57.199
S4.000	S12	15 Winter	100	+20%	100/15 Summer				58.672
S4.001	S13	30 Winter	100	+20%					58.190
S4.002	S14	30 Winter	100	+20%					57.839
S4.003	S15	30 Winter	100	+20%					57.711
S4.004	S16	30 Winter	100	+20%	100/30 Summer				57.602
S5.000	S17	15 Winter	100	+20%					58.769
S5.001	S18	360 Winter	100	+20%	30/30 Summer				58.759

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.021	0.000	0.88			58.9	OK	
S1.001	S2	0.109	0.000	0.74			85.2	SURCHARGED	
S1.002	S3	0.222	0.000	0.97			74.9	SURCHARGED	
S1.003	S4	0.229	0.000	0.83			98.6	SURCHARGED	
S1.004	S6	0.362	0.000	0.73			102.4	SURCHARGED	
S2.000	S7	0.314	0.000	0.57			21.7	SURCHARGED	
S1.005	S8	0.457	0.000	0.96			125.2	SURCHARGED	
S1.006	S9	0.490	0.000	1.45			147.8	SURCHARGED	
S1.007	S11	0.349	0.000	0.94			193.9	SURCHARGED	
S3.000	S12	0.306	0.000	1.33			50.3	SURCHARGED	
S3.001	S13	0.239	0.000	1.01			80.9	SURCHARGED	
S1.008	S12	0.401	0.000	1.47			253.8	SURCHARGED	
S4.000	S12	0.047	0.000	1.04			42.4	SURCHARGED	
S4.001	S13	-0.030	0.000	1.00		13	41.7	OK	
S4.002	S14	-0.084	0.000	0.86		12	56.9	OK	
S4.003	S15	-0.043	0.000	0.89		12	60.1	OK	
S4.004	S16	0.037	0.000	1.11		14	50.8	SURCHARGED	
S5.000	S17	-0.081	0.000	0.42			6.4	OK	
S5.001	S18	0.198	0.000	0.04		270	0.5	SURCHARGED	

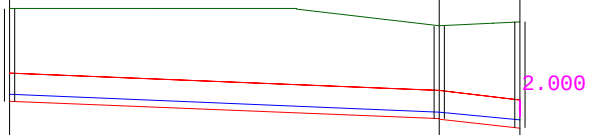
Summary of Critical Results by Maximum Level (Rank 1) for Storm

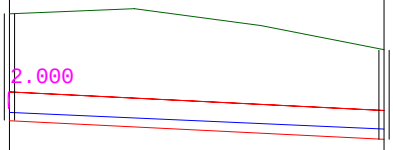
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S5.002	S19	720 Winter	100	+20%	30/120 Winter				58.428
S5.003	S20	1440 Winter	100	+20%	30/180 Winter				58.156
S5.004	S21	1440 Winter	100	+20%	30/360 Winter				57.818
S4.005	S22	30 Winter	100	+20%	100/30 Summer				57.522
S4.006	S23	2160 Winter	100	+20%	30/480 Winter				57.429
S4.007	S25	2160 Winter	100	+20%					56.963
S1.009	S26	15 Winter	100	+20%	30/15 Summer				56.905
S6.000	S27	15 Winter	100	+20%	100/15 Summer				57.434
S6.001	S28	15 Winter	100	+20%	100/15 Summer				57.351
S6.002	S29	15 Winter	100	+20%	100/15 Summer				57.330
S7.000	S30	15 Winter	100	+20%	100/15 Summer				57.365
S6.003	S31	15 Winter	100	+20%	30/15 Summer				57.143
S1.010	S32	15 Winter	100	+20%	30/15 Summer				56.667
S1.011	S33	30 Winter	100	+20%	30/15 Summer				56.511
S8.000	S34	15 Winter	100	+20%	100/15 Summer				57.701
S8.001	S35	15 Winter	100	+20%	30/15 Summer				57.674
S8.002	S36	15 Winter	100	+20%	30/15 Summer				57.487
S9.000	S37	15 Winter	100	+20%	100/15 Summer				57.506
S9.001	S38	15 Winter	100	+20%	30/15 Summer				57.464
S8.003	S39	15 Winter	100	+20%	30/15 Summer				57.451
S10.000	S40	15 Winter	100	+20%	30/15 Summer				57.808
S10.001	S41	15 Winter	100	+20%	30/15 Summer				57.484
S10.002	S42	15 Winter	100	+20%	30/15 Summer				56.913
S8.004	S43	15 Winter	100	+20%	30/15 Summer				56.750
S8.005	S44	15 Winter	100	+20%	30/15 Summer				56.556
S8.006	S45	15 Winter	100	+20%	30/15 Summer				56.372
S11.000	S46	15 Winter	100	+20%					56.892
S11.001	S47	15 Winter	100	+20%	100/15 Summer				56.734
S12.000	S48	15 Winter	100	+20%	30/15 Summer				57.678
S13.000	S49	15 Winter	100	+20%					57.424
S13.001	S50	15 Winter	100	+20%					57.260
S12.001	S51	15 Winter	100	+20%	30/15 Summer				57.193
S14.000	S52	15 Winter	100	+20%	30/15 Summer				57.780
S15.000	S53	15 Winter	100	+20%					56.967
S14.001	S54	15 Winter	100	+20%	30/15 Summer				56.952

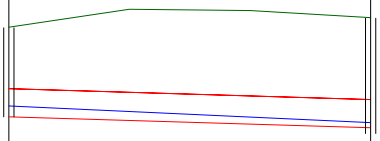
PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S5.002	S19	0.158	0.000	0.03		456	0.5	SURCHARGED	
S5.003	S20	0.164	0.000	0.03		696	0.5	SURCHARGED	
S5.004	S21	0.106	0.000	0.02		624	0.4	SURCHARGED	
S4.005	S22	0.022	0.000	1.17			50.7	SURCHARGED	
S4.006	S23	0.104	0.000	0.09			2.3	SURCHARGED	
S4.007	S25	-0.262	0.000	0.04			2.3	OK	
S1.009	S26	0.242	0.000	1.14			270.1	SURCHARGED	

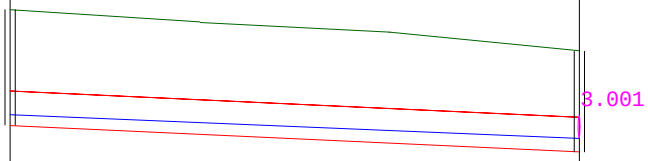
Summary of Critical Results by Maximum Level (Rank 1) for Storm

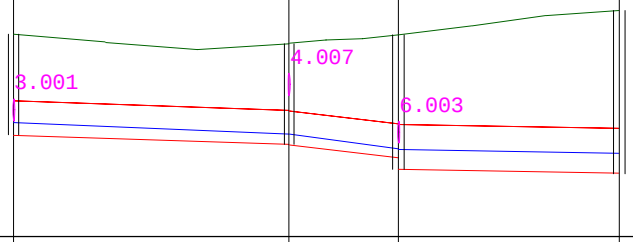
PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S6.000	S27	0.209	0.000	0.81			24.6	SURCHARGED	
S6.001	S28	0.285	0.000	1.07			27.0	SURCHARGED	
S6.002	S29	0.293	0.000	0.87			56.2	SURCHARGED	
S7.000	S30	0.190	0.000	0.78			39.0	SURCHARGED	
S6.003	S31	0.404	0.000	1.58			115.1	SURCHARGED	
S1.010	S32	0.182	0.000	1.57			389.7	SURCHARGED	
S1.011	S33	0.084	0.000	2.00			388.0	SURCHARGED	
S8.000	S34	0.476	0.000	0.36			13.2	SURCHARGED	
S8.001	S35	0.591	0.000	0.92			62.4	SURCHARGED	
S8.002	S36	0.681	0.000	1.17			59.7	SURCHARGED	
S9.000	S37	0.281	0.000	0.49			18.5	SURCHARGED	
S9.001	S38	0.485	0.000	0.42			21.0	SURCHARGED	
S8.003	S39	0.674	0.000	1.47			106.2	SURCHARGED	
S10.000	S40	0.728	0.000	1.16			77.7	FLOOD RISK	
S10.001	S41	0.629	0.000	1.70			175.0	SURCHARGED	
S10.002	S42	0.443	0.000	2.40			166.3	SURCHARGED	
S8.004	S43	0.304	0.000	1.46			277.2	SURCHARGED	
S8.005	S44	0.198	0.000	1.57			292.1	SURCHARGED	
S8.006	S45	0.086	0.000	2.21			290.4	SURCHARGED	
S11.000	S46	-0.133	0.000	0.34			15.4	OK	
S11.001	S47	0.073	0.000	1.02			92.7	SURCHARGED	
S12.000	S48	0.453	0.000	1.26			48.1	SURCHARGED	
S13.000	S49	-0.101	0.000	0.57			21.0	OK	
S13.001	S50	-0.104	0.000	0.56			20.7	OK	
S12.001	S51	0.288	0.000	1.71			62.9	SURCHARGED	
S14.000	S52	0.555	0.000	1.27			49.3	SURCHARGED	
S15.000	S53	-0.058	0.000	0.21			8.1	OK	
S14.001	S54	0.204	0.000	1.60			58.2	SURCHARGED	

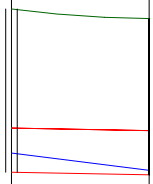
MH Name		S4		S8
Hor Scale 1000 Ver Scale 100 Datum (m)56.000				
PN		S1.003		
Dia (mm)		375		
Slope (1:X)		245.0		
Cover Level (m)		58.750 58.758 58.751	58.525	58.580
Invert Level (m)		57.530 57.298	57.298 57.170	
Length (m)		56.906		

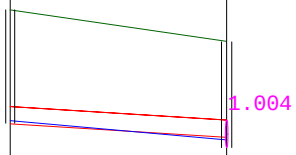
MH Name		S8	S9
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S1.005	
Dia (mm)		375	
Slope (1:X)		198.7	
Cover Level (m)		58.580 58.652 58.427	58.100
Invert Level (m)		57.170 56.920	
Length (m)		49.679	

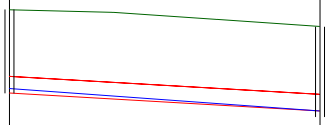
MH Name		S9	S11
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S1.006	
Dia (mm)		375	
Slope (1:X)		325.0	
Cover Level (m)		58.100 58.339 58.322	58.225
Invert Level (m)		56.920 56.773	
Length (m)		47.876	

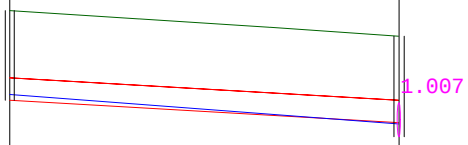
MH Name		S11	S12
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S1.007	
Dia (mm)		450	
Slope (1:X)		215.1	
Cover Level (m)		58.225 58.061 57.927	57.678
Invert Level (m)		56.698 56.348	
Length (m)		75.300	

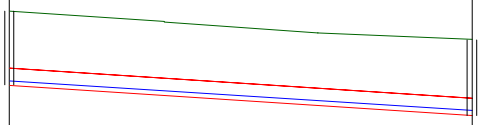
MH Name		S12			S26			S32			S33
Hor Scale 1000 Ver Scale 100 Datum (m)55.000											
PN		S1.008			S1.009			S1.010			
Dia (mm)		450			450			600			
Slope (1:X)		269.9			82.0			500.0			
Cover Level (m)		57.678	57.571	57.473	57.557	57.602	57.620	57.673	57.795	57.931	57.999
Invert Level (m)		56.348		56.213	56.213		56.035	55.885		55.827	
Length (m)		36.439			14.547			29.178			

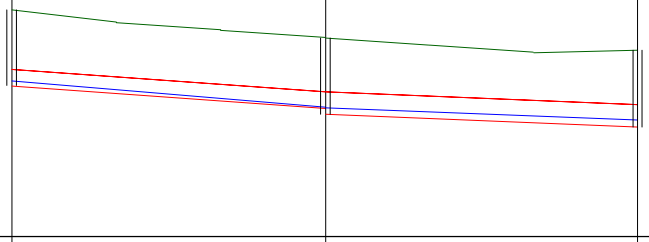
MH Name		S33		S	
Hor Scale 1000 Ver Scale 100 Datum (m)55.000					
PN		S1.011			
Dia (mm)		600			
Slope (1:X)		500.0			
Cover Level (m)		57.999	57.926	57.884	57.859
Invert Level (m)		55.827		55.790	
Length (m)		18.305			

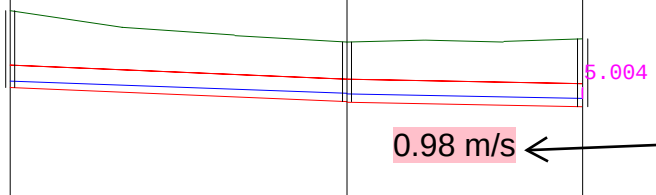
MH Name		S7	S8
Hor Scale 1000 Ver Scale 100 Datum (m)56.000			
PN		S2.000	
Dia (mm)		225	
Slope (1:X)		159.4	
Cover Level (m)		59.000	58.580
Invert Level (m)		57.500	57.320
Length (m)		28.690	

MH Name		S12	S13
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S3.000	
Dia (mm)		225	
Slope (1:X)		170.0	
Cover Level (m)		58.256 58.222 58.121	58.021
Invert Level (m)		57.150	56.908
Length (m)		41.130	

MH Name		S13	S12
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S3.001	
Dia (mm)		300	
Slope (1:X)		170.0	
Cover Level (m)		58.021 57.910 57.800	57.678
Invert Level (m)		56.833 56.530	
Length (m)		51.526	

MH Name		S12	S13
Hor Scale 1000 Ver Scale 100 Datum (m)56.000			
PN		S4.000	
Dia (mm)		225	
Slope (1:X)		151.0	
Cover Level (m)		59.377 59.235 59.089	59.000
Invert Level (m)		58.400 57.995	
Length (m)		61.230	

MH Name		S13			S14			S15
Hor Scale 1000 Ver Scale 100 Datum (m)56.000								
PN		S4.001			S4.002			
Dia (mm)		225			300			
Slope (1:X)		140.0			244.3			
Cover Level (m)		59.000	58.834	58.734	58.635	58.535	58.435	58.470
Invert Level (m)		57.995		57.698	57.623		57.454	
Length (m)		41.488			41.380			

MH Name		S15			S16			S22
Hor Scale 1000 Ver Scale 100 Datum (m)56.000								
PN		S4.003			S4.004			
Dia (mm)		300			300			
Slope (1:X)		236.3			479.1			
Cover Level (m)		58.470	58.249	58.146	58.055	58.087	58.060	58.100
Invert Level (m)		57.454		57.265	57.265		57.200	
Length (m)		44.540			31.238			

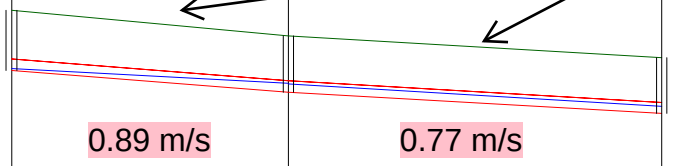
0.98 m/s

From raingarden, to remain as shallow as possible to reduce attenuation depth

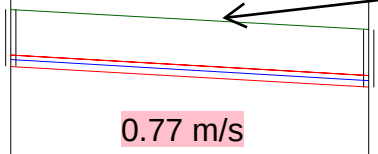
MH Name		S22			S23
Hor Scale 1000 Ver Scale 100 Datum (m)55.000		5.004	0.65 m/s		
PN		S4.005			
Dia (mm)		300			
Slope (1:X)		577.5			
Cover Level (m)		58.100	58.144	58.072	58.100
Invert Level (m)		57.200		57.100	
Length (m)		57.749			

MH Name		S23		S25		S26
Hor Scale 1000 Ver Scale 100 Datum (m)55.000		0.67 m/s		1.008		
PN		S4.006		S4.007		
Dia (mm)		225		300		
Slope (1:X)		373.8		245.0		
Cover Level (m)		58.100	57.972	57.804	58.150	57.580	57.547	57.557
Invert Level (m)		57.100		57.000	56.925		56.865	
Length (m)		37.377		14.639		

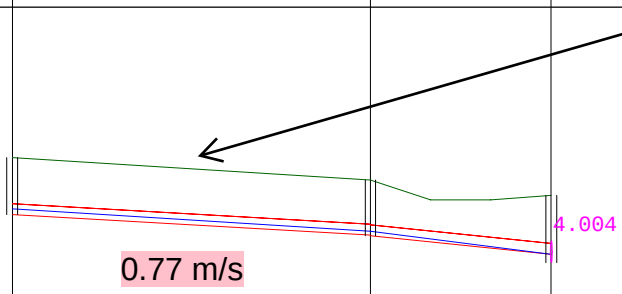
Attenuation (Swale & Basin)

MH Name		S17	S18	S19
Hor Scale 1000 Ver Scale 100 Datum (m)57.000				
PN		S5.000	S5.001	
Dia (mm)		150	150	
Slope (1:X)		126.7	170.1	
Cover Level (m)		59.500	59.161	58.870
Invert Level (m)		58.700 / 58.411	58.411 / 58.120	
Length (m)		36.600	49.465	

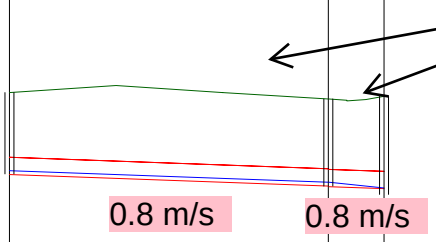
Swale Pipe. Silt will be filtered out before entering perforated pipe.

MH Name		S19	S20
Hor Scale 1000 Ver Scale 100 Datum (m)56.000			
PN		S5.002	
Dia (mm)		150	
Slope (1:X)		170.0	
Cover Level (m)		58.870	58.600
Invert Level (m)		58.120 / 57.841	
Length (m)		47.432	

Swale Pipe. Silt will be filtered out before entering perforated pipe.

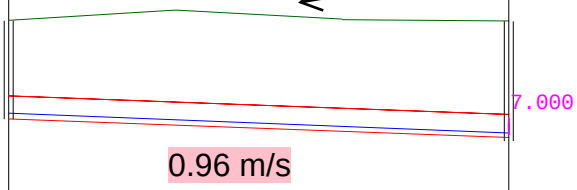
MH Name		S20		S21		S22
Hor Scale 1000 Ver Scale 100 Datum (m)56.000						
PN		S5.003		S5.004		
Dia (mm)		150		150		
Slope (1:X)		170.0		95.1		
Cover Level (m)		58.600		58.300	58.035 / 58.038	58.100
Invert Level (m)		57.841	57.562	57.562	57.311	
Length (m)		47.445		23.910		

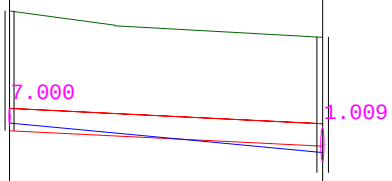
Swale Pipe. Silt will be filtered out before entering perforated pipe.

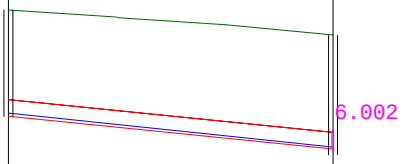
MH Name		S27			S29
Hor Scale 1000 Ver Scale 100 Datum (m)55.000					
PN		S6.000			
Dia (mm)		225			
Slope (1:X)		265.0			
Cover Level (m)		58.081 / 58.178 / 58.085		57.994	58.033
Invert Level (m)		57.000	56.840	56.840 / 56.812	
Length (m)		42.285			

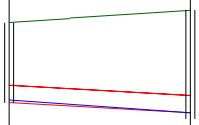
Constraint. Needs to remain flat to retain outfall IL above Regional Pond TWL.

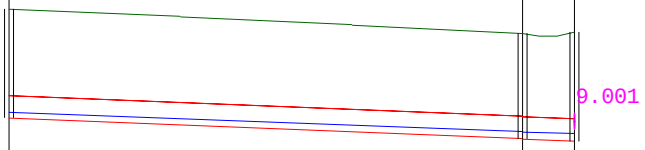
Constraint. Needs to remain flat to retain outfall IL above Regional Pond TWL.

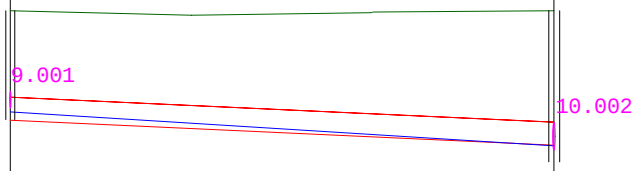
MH Name		S29	S31
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S6.002	
Dia (mm)		300	
Slope (1:X)		265.1	
Cover Level (m)		58.033 58.171 58.045	58.021
Invert Level (m)		56.737	56.488
Length (m)		66.251	

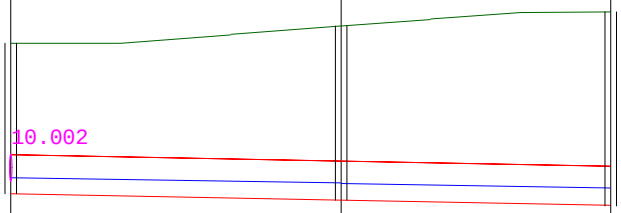
MH Name		S31	S32
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S6.003	
Dia (mm)		300	
Slope (1:X)		200.0	
Cover Level (m)		58.021 57.832 57.752	57.673
Invert Level (m)		56.439	56.232
Length (m)		41.430	

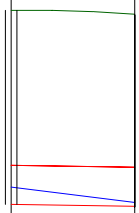
MH Name		S30	S31
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S7.000	
Dia (mm)		225	
Slope (1:X)		98.6	
Cover Level (m)		58.358 58.261 58.164	58.021
Invert Level (m)		56.950	56.514
Length (m)		42.983	

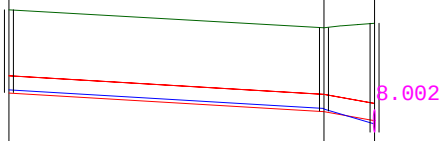
MH Name		S34	S35
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S8.000	
Dia (mm)		225	
Slope (1:X)		170.0	
Cover Level (m)		58.051 58.107 58.164	58.220
Invert Level (m)		57.000	56.858
Length (m)		24.089	

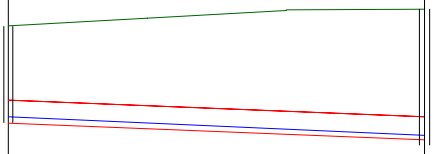
MH Name		S35		S39
Hor Scale 1000 Ver Scale 100 Datum (m)55.000				
PN		S8.001		
Dia (mm)		300		
Slope (1:X)		245.0		
Cover Level (m)		58.220 58.124 58.016	57.899	57.923
Invert Level (m)		56.783 56.506	56.506	
Length (m)		67.990		

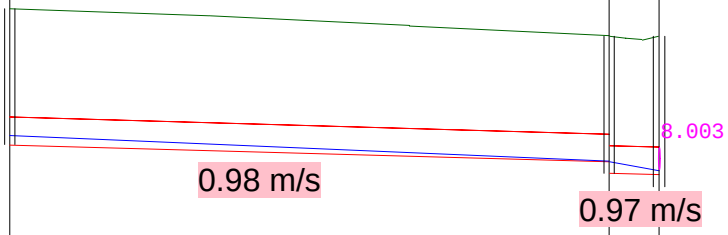
MH Name		S39	S43
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S8.003	
Dia (mm)		300	
Slope (1:X)		216.9	
Cover Level (m)		57.923 57.861 57.895	57.920
Invert Level (m)		56.478 56.146	
Length (m)		72.027	

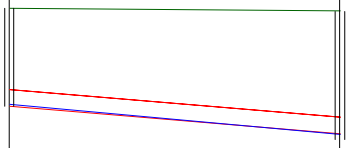
MH Name		S43			S44			S45
Hor Scale 1000 Ver Scale 100 Datum (m)55.000								
PN		S8.004			S8.005			
Dia (mm)		525			525			
Slope (1:X)		496.2			496.2			
Cover Level (m)		57.920	57.912	58.029	58.146	58.235	58.324	58.336
Invert Level (m)		55.921		55.833	55.833		55.761	
Length (m)		43.662			35.726			

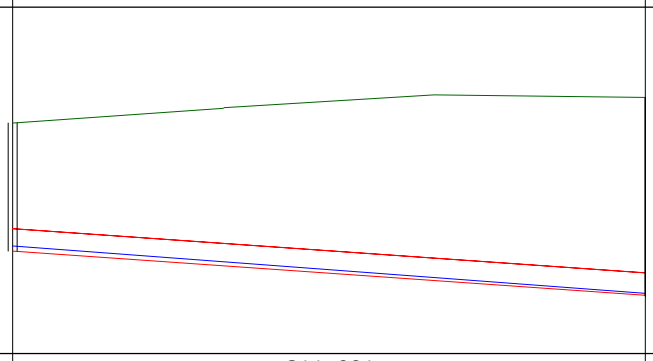
MH Name		S45		S
Hor Scale 1000 Ver Scale 100 Datum (m)55.000				
PN		S8.006		
Dia (mm)		525		
Slope (1:X)		495.2		
Cover Level (m)		58.336	58.336	58.315	58.277
Invert Level (m)		55.761		55.728	
Length (m)		16.343		

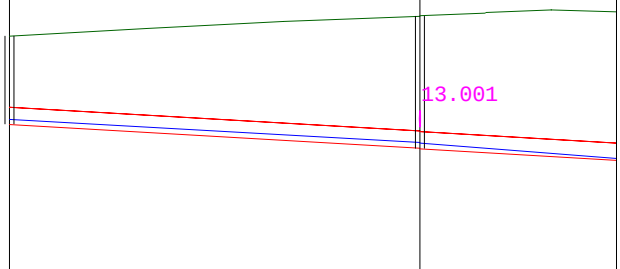
MH Name		S37		S39
Hor Scale 1000 Ver Scale 100 Datum (m)55.000				
PN		S9.000		
Dia (mm)		225		
Slope (1:X)		170.0		
Cover Level (m)		58.100	57.861	57.923
Invert Level (m)		57.000	56.754	56.754
Length (m)		41.762		

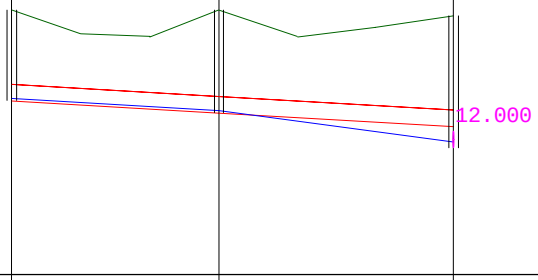
MH Name		S40			S41
Hor Scale 1000 Ver Scale 100 Datum (m)55.000					
PN		S10.000			
Dia (mm)		300			
Slope (1:X)		245.0			
Cover Level (m)		58.057	58.163	58.267	58.282
Invert Level (m)		56.780		56.555	
Length (m)		55.157			

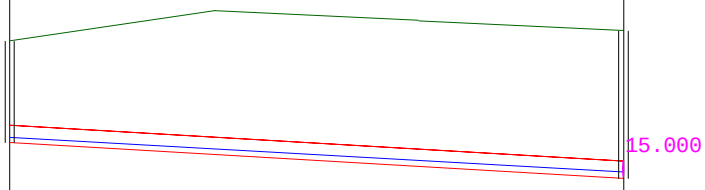
MH Name		S41				S43
Hor Scale 1000 Ver Scale 100 Datum (m)55.000						
PN		S10.001				
Dia (mm)		375				
Slope (1:X)		339.2				
Cover Level (m)		58.282	58.188	58.055	57.923	57.920
Invert Level (m)		56.480			56.246	56.095
Length (m)		79.376				

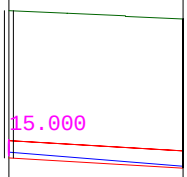
MH Name		S46	S47
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S11.000	
Dia (mm)		225	
Slope (1:X)		120.0	
Cover Level (m)		58.100	58.058
Invert Level (m)		56.800	56.435
Length (m)		43.780	

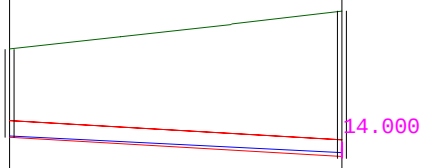
MH Name		S47			S
Hor Scale 1000 Ver Scale 100 Datum (m)55.000					
PN		S11.001			
Dia (mm)		300			
Slope (1:X)		139.6			
Cover Level (m)		58.058	58.253	58.428	58.388
Invert Level (m)		56.360		55.760	
Length (m)		83.759			

MH Name		S48			S51		S
Hor Scale 1000 Ver Scale 100 Datum (m)55.000							
PN		S12.000			S12.001		
Dia (mm)		225			225		
Slope (1:X)		170.0			170.0		
Cover Level (m)		58.165	58.267	58.362	58.430	58.470	58.510	58.478
Invert Level (m)		57.000		56.680	56.680		56.527	
Length (m)		54.360			26.000		

MH Name		S49			S50			S51
Hor Scale 1000 Ver Scale 100 Datum (m)55.000								
PN		S13.000			S13.001			
Dia (mm)		225			225			
Slope (1:X)		170.3			170.0			
Cover Level (m)		58.500	58.186	58.144	58.500	58.149	58.277	58.430
Invert Level (m)		57.300		57.139	57.139		56.956	
Length (m)		27.411			31.097			

MH Name		S52			S54
Hor Scale 1000 Ver Scale 100 Datum (m)55.000					
PN		S14.000			
Dia (mm)		225			
Slope (1:X)		170.0			
Cover Level (m)		58.340	58.744	58.609	58.474
Invert Level (m)		57.000		56.522	
Length (m)		81.209			

MH Name		S54	S
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S14.001	
Dia (mm)		225	
Slope (1:X)		170.0	
Cover Level (m)		58.474 58.435 58.397	58.358
Invert Level (m)		56.522 56.386	
Length (m)		23.159	

MH Name		S53	S54
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		S15.000	
Dia (mm)		225	
Slope (1:X)		170.0	
Cover Level (m)		57.964 58.131 58.298	58.474
Invert Level (m)		56.800 56.541	
Length (m)		44.067	

Appendix E – Confirmation of Feasibility

Therese Pender

South Dublin County Council
County Hall
Tallaght
Dublin

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

25 November 2021

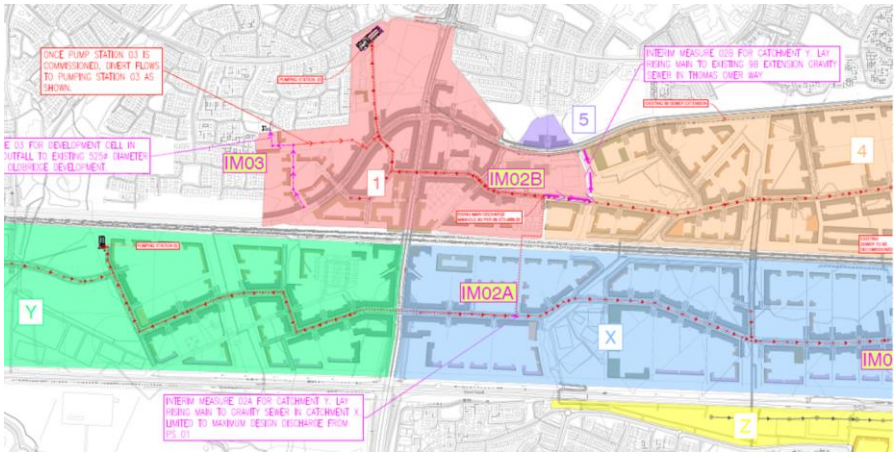
Re: CDS20004207 pre-connection enquiry - Subject to contract | Contract denied

Connection for Multi/Mixed Use Development of 275 units at SDCC lands at Lynch's Lane, Clonburris, Co. Dublin

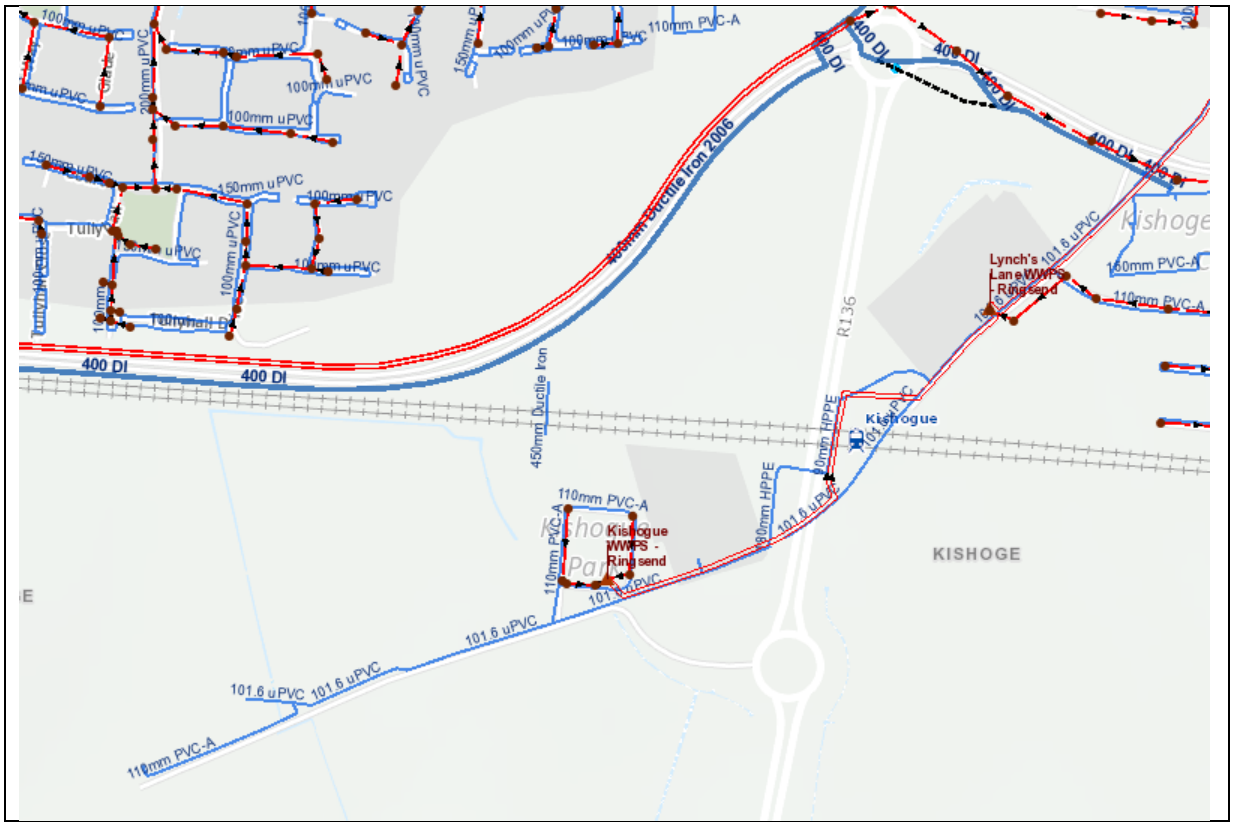
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at SDCC lands at Lynch's Lane, Clonburris, Co. Dublin (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	**OUTCOME OF PRE-CONNECTION ENQUIRY** **THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.**
Water Connection	Feasible Subject to upgrades
Wastewater Connection	Feasible Subject to upgrades
SITE SPECIFIC COMMENTS	
Water Connection	• Connection main – Approx. 85m of new 150mm ID pipe mains to be laid to connect the site developments (see yellow sections below) to the existing 180mm HPPE main. As shown below (see red dashed-line in figure). Connection mains are to have a bulk meter on it which will be linked up to telemetry online. • Upgrade main – Approx. 285m of new 150mm ID pipe mains to be laid to work in parallel with the existing 4" uPVC and connect with both to the existing 180mm HPPE main and the 400mm DI. As shown below (see green line in figure).

	
Wastewater Connection	The Development is a part of Clonburris Strategic Development Zone (SDZ) – Catchment Y. In order to facilitate the proposed Development, all relevant core wastewater infrastructure within the Zone have to be completed, connected to the Irish Water network and in operation. All required works will need to be in accordance with Clonburris SDZ Master Plan including Interim Measures. As per the Master Plan, the Development may connect via proposed SDZ Pumping Station 02. The rising main from the Pumping Station may connect via IM02A route as an interim measure. The connection is subject to delivery of the trunk sewer in Catchment X and the delivery of the proposed SDZ Pumping Station 01 and 02. The core infrastructure will be delivered by Clonburris Infrastructure Limited except Pumping Station 01 which will be delivered by Irish Water. 
The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.	

The map included below outlines the current Irish Water infrastructure adjacent to your site:



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

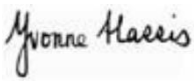
General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.

6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Marina Byrne from the design team via email mzbyrne@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,



Yvonne Harris

Head of Customer Operations

Appendix F – Foul Water Network Results & Longsections

FOUL SEWERAGE DESIGN

Design Criteria for Foul - Main

Pipe Sizes STANDARD Manhole Sizes STANDARD

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.000
Flow Per Person (l/per/day)	165.00	Maximum Backdrop Height (m)	2.500
Persons per House	2.70	Min Design Depth for Optimisation (m)	0.000
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Foul - Main

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.000	52.437	0.874	60.0	0.000	8	0.0	1.500	o	150	Pipe/Conduit	
F1.001	43.084	0.313	137.5	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
F1.002	5.144	0.037	137.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1.003	57.755	0.420	137.5	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
F1.004	62.100	0.311	200.0	0.000	6	0.0	1.500	o	225	Pipe/Conduit	
F1.005	57.032	0.285	200.0	0.000	2	0.0	1.500	o	225	Pipe/Conduit	
F1.006	60.172	0.301	200.0	0.000	6	0.0	1.500	o	225	Pipe/Conduit	
F2.000	30.559	1.019	30.0	0.000	12	0.0	1.500	o	150	Pipe/Conduit	
F2.001	75.695	0.378	200.0	0.000	10	0.0	1.500	o	225	Pipe/Conduit	
F3.000	62.184	1.036	60.0	0.000	6	0.0	1.500	o	150	Pipe/Conduit	
F3.001	72.743	0.529	137.5	0.000	11	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.000	57.989	0.000	0.0	8	0.0	12	0.37	1.13	20.0	0.2
F1.001	57.115	0.000	0.0	15	0.0	20	0.34	0.75	13.2	0.5
F1.002	56.802	0.000	0.0	15	0.0	20	0.34	0.75	13.2	0.5
F1.003	56.764	0.000	0.0	19	0.0	22	0.37	0.75	13.2	0.6
F1.004	55.600	0.000	0.0	25	0.0	24	0.33	0.81	32.2	0.8
F1.005	55.290	0.000	0.0	27	0.0	25	0.34	0.81	32.2	0.8
F1.006	55.004	0.000	0.0	33	0.0	28	0.36	0.81	32.2	1.0
F2.000	56.400	0.000	0.0	12	0.0	12	0.54	1.60	28.3	0.4
F2.001	55.306	0.000	0.0	22	0.0	23	0.32	0.81	32.2	0.7
F3.000	58.070	0.000	0.0	6	0.0	11	0.34	1.13	20.0	0.2
F3.001	57.034	0.000	0.0	17	0.0	21	0.36	0.75	13.2	0.5

Network Design Table for Foul - Main

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F3.002	53.491	0.389	137.5	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
F3.003	5.978	0.043	137.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F3.004	57.610	0.288	200.0	0.000	7	0.0	1.500	o	225	Pipe/Conduit	
F3.005	53.900	0.270	200.0	0.000	3	0.0	1.500	o	225	Pipe/Conduit	
F2.002	46.446	0.232	200.0	0.000	8	0.0	1.500	o	225	Pipe/Conduit	
F4.000	58.925	0.982	60.0	0.000	6	0.0	1.500	o	150	Pipe/Conduit	
F4.001	45.404	0.330	137.5	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
F2.003	29.592	0.148	200.0	0.000	9	0.0	1.500	o	225	Pipe/Conduit	
F5.000	70.383	1.173	60.0	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
F5.001	7.555	0.126	60.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F5.002	72.202	0.361	200.0	0.000	12	0.0	1.500	o	225	Pipe/Conduit	
F6.000	53.805	0.359	150.0	0.000	16	0.0	1.500	o	150	Pipe/Conduit	
F6.001	78.869	0.394	200.0	0.000	4	0.0	1.500	o	225	Pipe/Conduit	
F6.002	6.895	0.034	200.0	0.000	0	0.0	1.500	o	225	Pipe/Conduit	
F5.003	82.389	0.412	200.0	0.000	26	0.0	1.500	o	225	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F3.002	56.505	0.000	0.0	20	0.0	22	0.37	0.75	13.2	0.6
F3.003	56.116	0.000	0.0	20	0.0	22	0.37	0.75	13.2	0.6
F3.004	55.997	0.000	0.0	27	0.0	25	0.34	0.81	32.2	0.8
F3.005	55.709	0.000	0.0	30	0.0	27	0.35	0.81	32.2	0.9
F2.002	54.928	0.000	0.0	60	0.0	37	0.44	0.81	32.2	1.9
F4.000	56.718	0.000	0.0	6	0.0	11	0.34	1.13	20.0	0.2
F4.001	55.736	0.000	0.0	15	0.0	20	0.34	0.75	13.2	0.5
F2.003	54.696	0.000	0.0	84	0.0	43	0.48	0.81	32.2	2.6
F5.000	56.800	0.000	0.0	7	0.0	11	0.36	1.13	20.0	0.2
F5.001	55.627	0.000	0.0	7	0.0	11	0.36	1.13	20.0	0.2
F5.002	55.426	0.000	0.0	19	0.0	21	0.31	0.81	32.2	0.6
F6.000	56.700	0.000	0.0	16	0.0	21	0.34	0.71	12.6	0.5
F6.001	56.266	0.000	0.0	20	0.0	22	0.31	0.81	32.2	0.6
F6.002	55.872	0.000	0.0	20	0.0	22	0.31	0.81	32.2	0.6
F5.003	55.065	0.000	0.0	65	0.0	38	0.45	0.81	32.2	2.0

Network Design Table for Foul - Main

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F7.000	65.600	0.477	137.5	0.000	18	0.0	1.500	o	150	Pipe/Conduit	
F8.000	23.803	0.397	60.0	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
F8.001	40.509	0.675	60.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F7.000	56.831	0.000	0.0	18	0.0	21	0.36	0.75	13.2	0.6
F8.000	56.900	0.000	0.0	4	0.0	9	0.30	1.13	20.0	0.1
F8.001	56.503	0.000	0.0	6	0.0	11	0.34	1.13	20.0	0.2

Free Flowing Outfall Details for Foul - Main

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F1.006	F	58.328	54.703	54.694	0	0

Free Flowing Outfall Details for Foul - Main

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F2.003	F	57.973	54.548	54.499	0	0

Free Flowing Outfall Details for Foul - Main

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F5.003	F	58.336	54.653	54.008	0	0

Free Flowing Outfall Details for Foul - Main

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F7.000	F	58.393	56.354	54.599	0	0

Free Flowing Outfall Details for Foul - Main

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F8.001	F	58.453	55.828	54.745	0	0

Simulation Criteria for Foul - Main

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

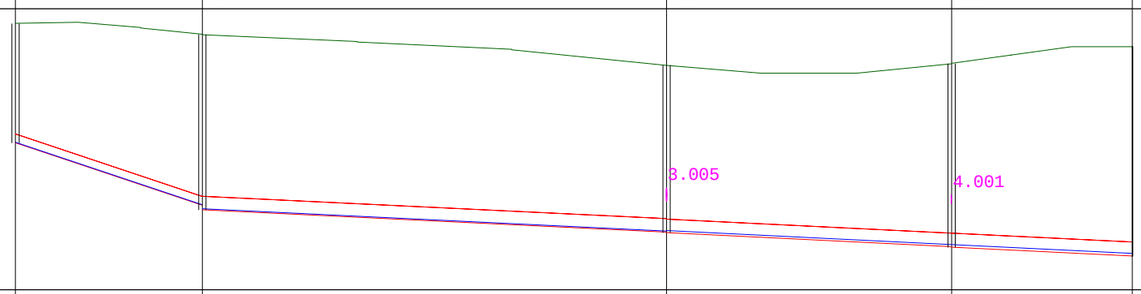
Synthetic Rainfall Details

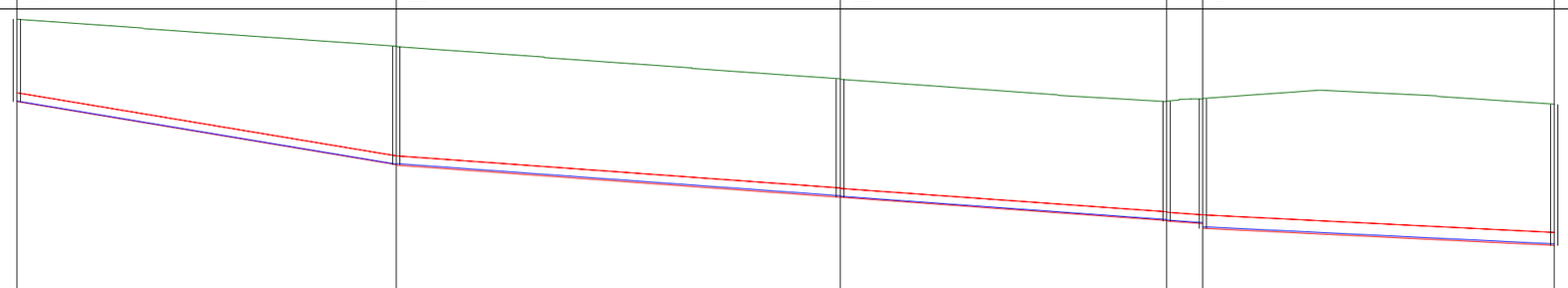
Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	5	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	16.900	Storm Duration (mins)	30
Ratio R	0.276		

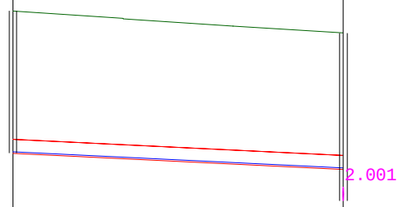
AECOM		Page 1
Midpoint Alencon Link Basingstoke, RG21 7PP		
Date 15/03/2022 18:42	Designed by Dara.Magee	
File Clonburris.MDX	Checked by	
Innovyze	Network 2020.1	

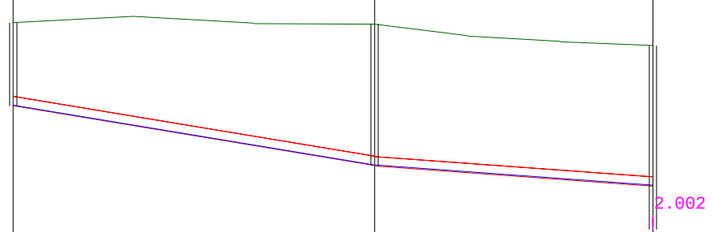
MH Name		F1			F2			F4			F5			F6			F7
Hor Scale 1000 Ver Scale 100 Datum (m)55.000																	
PN		F1.000			F1.001			F1.003			F1.004			F1.005			
Dia (mm)		150			150			150			225			225			
Slope (1:X)		60.0			137.5			137.5			200.0			200.0			
Cover Level (m)		59.339	59.225	59.112	58.998	58.905	58.813	58.706	58.672	58.754	58.751	58.529	58.624	58.475	58.086	58.518	58.737	58.643
Invert Level (m)		57.989		57.115	57.115		56.802	56.802	56.764		56.344	55.600		55.290	55.290		55.004	
Length (m)		52.437			43.084			57.755			62.100			57.032			

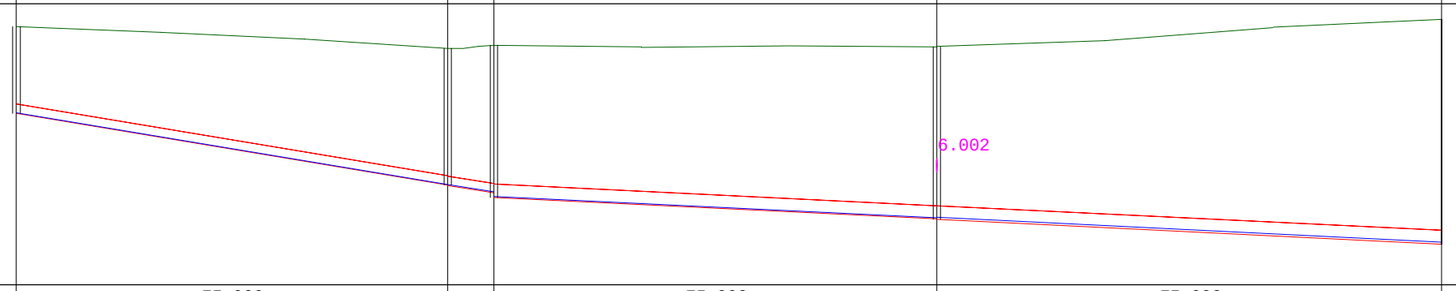
MH Name		F7	F
Hor Scale 1000 Ver Scale 100 Datum (m)54.400			
PN		F1.006	
Dia (mm)		225	
Slope (1:X)		200.0	
Cover Level (m)		58.643 58.538 58.433	58.328
Invert Level (m)		55.004 54.703	
Length (m)		60.172	

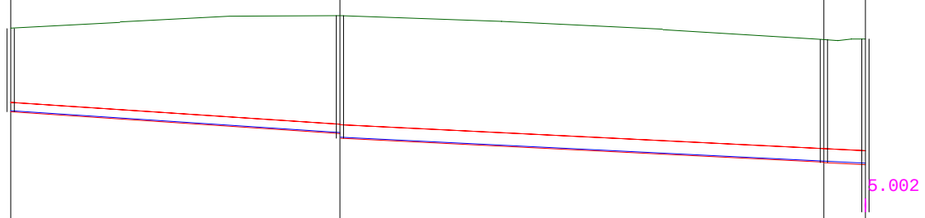
MH Name		F8			F9			F16			F19			F
Hor Scale 1000 Ver Scale 100 Datum (m)54.000														
PN		F2.000			F2.001			F2.002			F2.003			
Dia (mm)		150			225			225			225			
Slope (1:X)		30.0			200.0			200.0			200.0			
Cover Level (m)		58.341	58.365	58.275	58.165	58.048	57.921	57.666	57.536	57.538	57.693	57.832	57.971	57.973
Invert Level (m)		56.400	55.381		55.306	54.928		54.928	54.696		54.696	54.548		
Length (m)		30.559			75.695			46.446			29.592			

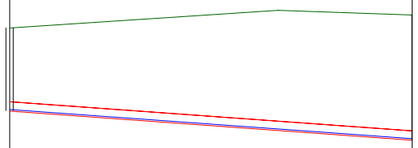
MH Name		F10			F11			F12				F14			F15
Hor Scale 1000 Ver Scale 100 Datum (m)55.000															
PN		F3.000			F3.001			F3.002				F3.004			
Dia (mm)		150			150			150				225			
Slope (1:X)		60.0			137.5			137.5				200.0			
Cover Level (m)		59.420	59.271	59.121	58.971	58.794	58.616	58.439	58.309	58.180	58.078	58.117	58.259	58.157	58.025
Invert Level (m)		58.070		57.034	57.034		56.505	56.505		56.116	56.116	55.997		55.709	
Length (m)		62.184			72.743			53.491				57.610			

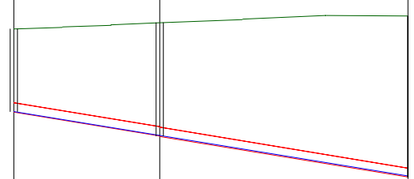
MH Name		F15	F16
Hor Scale 1000 Ver Scale 100 Datum (m)54.000			
PN		F3.005	
Dia (mm)		225	
Slope (1:X)		200.0	
Cover Level (m)		58.025 57.903 57.780	57.666
Invert Level (m)		55.709	55.440
Length (m)		53.900	

MH Name		F17	F18	F19
Hor Scale 1000 Ver Scale 100 Datum (m)54.000				
PN		F4.000	F4.001	
Dia (mm)		150	150	
Slope (1:X)		60.0	137.5	
Cover Level (m)		58.068 58.172 58.058	58.046 57.852 57.761	57.693
Invert Level (m)		56.718 55.736	55.736 55.406	
Length (m)		58.925	45.404	

MH Name		F20				F22			F26			F
Hor Scale 1000 Ver Scale 100 Datum (m)54.000												
PN		F5.000				F5.002			F5.003			
Dia (mm)		150				225			225			
Slope (1:X)		60.0				200.0			200.0			
Cover Level (m)		58.215	58.122	58.009	57.856	57.909	57.876	57.905	57.888	57.982	58.201	58.336
Invert Level (m)		56.800		55.627	55.627	55.501	55.426	55.065	55.065		54.653	
Length (m)		70.383				72.202			82.389			

MH Name		F23			F24				F26
Hor Scale 1000 Ver Scale 100 Datum (m)54.000									
PN		F6.000			F6.001				
Dia (mm)		150			225				
Slope (1:X)		150.0			200.0				
Cover Level (m)		58.056	58.156	58.257	58.268	58.174	58.043	57.879	57.888
Invert Level (m)		56.700		56.341	56.266		55.872	55.872	
Length (m)		53.805			78.869				

MH Name		F27	F
Hor Scale 1000 Ver Scale 100 Datum (m)55.000			
PN		F7.000	
Dia (mm)		150	
Slope (1:X)		137.5	
Cover Level (m)		58.181 58.326 58.471	58.393
Invert Level (m)		56.831	56.354
Length (m)		65.600	

MH Name		F28	F29	F
Hor Scale 1000 Ver Scale 100 Datum (m)55.000				
PN		F8.000	F8.001	
Dia (mm)		150	150	
Slope (1:X)		60.0	60.0	
Cover Level (m)		58.250 58.280 58.314	58.353 58.408 58.469	58.453
Invert Level (m)		56.900 56.503	56.503 55.828	
Length (m)		23.803	40.509	

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