Transport for New South Wales

City and Southwest Sydney Metro, Sub-portions 4 and 5: Marrickville Industrial Areas

Geotechnical and Contamination Investigation Factual Report

December 2017

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1. Introduction

1.1 Introduction

GHD Pty Ltd (GHD) was commissioned by Transport for NSW (TfNSW) to undertake a series of investigations along the Sydenham to Bankstown rail line. This has included contamination and geotechnical assessments of rail infrastructure, in addition to other disciplines,. The body of work, known commercially as variation 07, is for a package of contamination and geotechnical assessments. This was originally split into four discrete sub- portions, and a fifth has since been added.

This report relates to the scope of work known as sub-portions 4 and 5.

The geotechnical and contamination assessment of sub-portions 4 and 5 comprises of the industrial areas north-east of Sydenham Station and Junction proposed for housing the dive site and the Sydney Metro Trains Facility South.

The location of the proposed infrastructure assessed during this investigation is presented on **Figure B1** in **Appendix B**.

For the purposes of this report, the sub-portions 4 and 5 areas are referred to herein as the investigation area.

1.2 Background

GHD have prepared a Sydney Metro City & Southwest Sydenham to Bankstown Upgrade Phase I Contamination Assessment Report, dated 01 March 2017 for the whole of the Sydenham to Bankstown alignment. The following pertinent information was reported by GHD:

- The sub-portions 4 and 5 areas (proposed Sydney Metro Trains Facility South site) have been used for railway corridor and commercial/industrial buildings for more than 70 years (based on the earliest available historical aerial photographs). Contaminants of potential concern associated with the use of the land as a railway corridor and commercial / industrial land use include asbestos, heavy metals, petroleum hydrocarbons, solvents and herbicides.
- Land surrounding of the sub-portions 4 and 5 areas is generally used for commercial and light industrial land use.
- Published maps indicated that potential acid sulfate soil is likely to be present within the disturbed terrain in the sub-portions 4 and 5 areas.
- Information from previous investigations within the general project area indicate that fill soil is present at various depths. Contamination identified from previous investigations includes asbestos, heavy metals, petroleum hydrocarbons and solvents within the fill soils.

1.3 Objectives

The objectives of this geotechnical and contamination assessment are to:

- Present the collected ground information, including borehole logs and laboratory test results.
- Present a description of the site, including details of any structures existing on the site at the time of the investigation.
- Comment on in-situ testing undertaken during the field investigation.

- Comment on the presence of groundwater.
- Assess the impact of soil contamination at the ten borehole locations.
- Assess the impact of groundwater contamination at the two installed monitoring wells.

The purpose of this report is to provide a summary of the data collected using the methods described throughout this report.

1.4 Scope of works

The scope of works for the geotechnical and contamination investigations comprised:

- Drilling of ten machine augered boreholes at locations specified by TfNSW.
- Collection of representative samples from the boreholes.
- Installation of two groundwater monitoring wells.
- Collection of groundwater samples from the monitoring wells (for final report only).
- Laboratory testing of selected soil and groundwater samples.
- Preparation of a combined geotechnical and contamination investigation factual report.

1.5 Scope and limitations

GHD's limitations to the assessment are provided in **Section 9**.

- Minor changes to sampling locations were agreed between GHD and TfNSW based on a joint assessment of the required sampling objectives. This included moving sampling sites to more assessable locations.
- Testing timings for shrink test and vane shear test results were agreed between TfNSW and GHD and the requirements for these have been deleted.

2. Site Setting

2.1 Site identification

The site identification is summarised in Table 1.

Table 1 – Site identification summary

Information	Details
Site address	1A, 1B and 1C Sydney Steel Road, 11 Sydenham Road, Murray Street (west), Marrickville
Site area	8.2 hectares (approximately)
Local government area	Inner West Council
Lot & DP	Lot 1 DP 613757; Lot 4 DP 802920; Lot 103 DP 630403; Lot 10 DP 874363; Lot 1 DP 623924; Lot 31 & 32 DP 709081; Lot 38 DP 4991; Lot 100 DP 1162506; Lot 1 DP 165759; Lot 53 DP 667553; Lot 1 DP 622660; and, SP 73349
Current land zoning	IN1 General Industrial
Current land use	Industrial Complex - Manufacturing
Proposed land use	Metro infrastructure

2.2 Site description

The site is located within an industrial / commercial complex at 1A, 1B and 1C Sydney Steel Road, 11 Sydenham Road and Murray Street (west), Marrickville. The site is bounded by the rail corridor to the south, Sydney Steel Road, Edinburgh Road and industrial complexes to the north, Railway Parade to the east and the Sydney Water Sydenham Basin to the southwest. The location and approximate site extent is shown in Figure B1, in Appendix B.

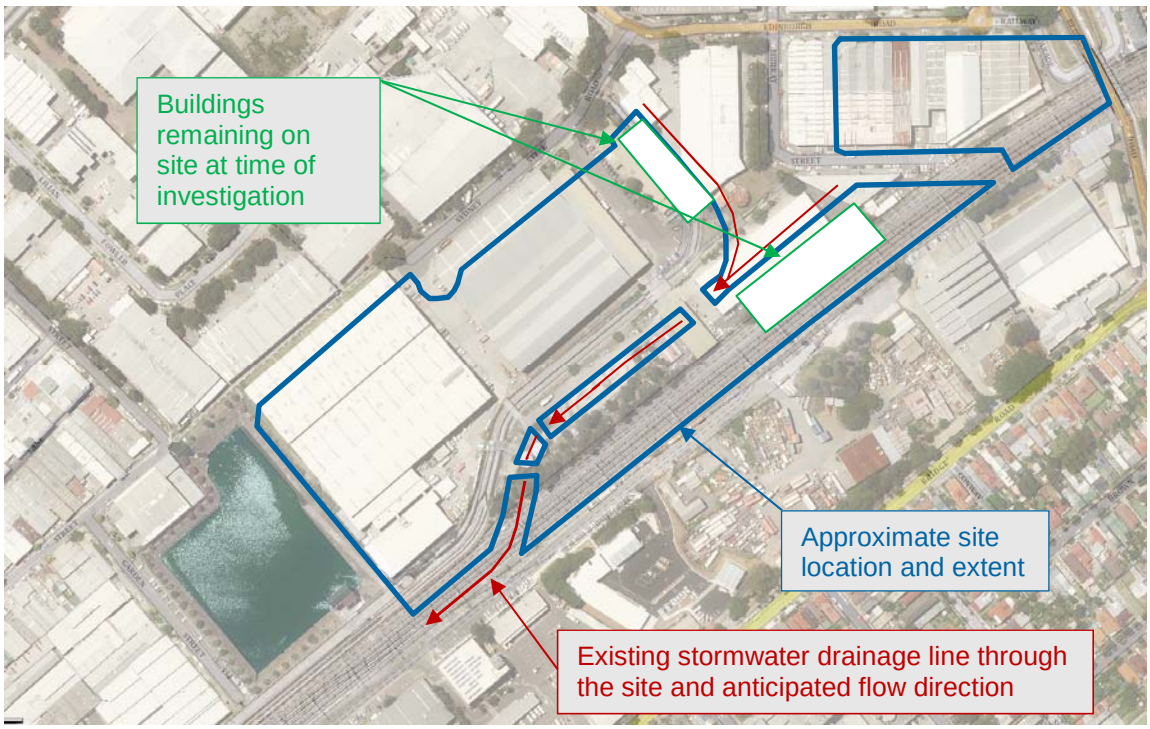

Figure 1 – Approximate site location and extent

The site is located within an area of gently sloping terrain with site slopes in the order of approximately 1°. The site appears to have been extensively filled and levelled to facilitate construction of the former industrial / commercial buildings.

At the time of fieldwork, the majority of the former industrial / commercial buildings had been demolished and removed with the exception of the following:

- A single story brick veneer office building located on Lot 103 DP 630403; and,
- A large metal clad warehouse building located on Lot 4 DP 802920.

The buildings are identified in Figure 1 above.

Surfaces throughout the site generally comprised of rigid concrete pavements within the former industrial / commercial building footprints and flexible pavements within access roads. Minimal exposed surfaces were observed during the field investigation.

A site photo showing the general site layout is presented below in Figure 2.

Figure 2 – Site photo showing the general site layout

2.3 Topography and drainage

Surface water flows are expected to follow the local topography of the site, discharging into adjacent properties (including the rail corridor or Sydenham Basin) or collecting into stormwater drainage pits generally located adjacent to flexible pavements. Collected stormwater flows are expected to discharge into the stormwater drainage line traversing through the site in a generally south-west direction. The location of the stormwater drainage line is shown in Figure 1, along with the expected flow direction.

2.4 Soils and landscapes

The *Soil Conservation Service of NSW 1:100,000 Soil Landscape Series Sheet 9130, Sydney*, classifies the soils as residual landscape of Blacktown and alluvial landscape of Birrong, describing the soils and landscapes as follows:

- Blacktown Landscape: gently undulating raised on Wianamatta Group shales and Hawkesbury shale. Local relief to 30 m, slopes are usually <5%. Broad round crests and ridges with gently included slopes. Cleared woodland and tall open-forest.

  Soils: shallow to moderately deep (<100 cm) on crests, upper slopes and well drained areas; deep on lower slopes and in areas of poor drainage.

  Limitations: moderately reactive highly plastic subsoil, low soil fertility, poor soil drainage.

- Birrong Landscape: level to gently undulating alluvial floodplain draining Wianamatta Group shales. Lcal relief to 5 m, slopes <3%. Broad valley flats. Extensively cleared tall open-forest and woodland.

  Soils: deep (>250 cm) on older alluvial (terraces); deep on current floodplain.

Limitations: localised flooding, high soil erosion hazard, saline subsoils, seasonal waterlogging, very low soil fertility.

2.5 Acid sulfate soils risk

Reference to the *Department of Land and Water Conservation, 1:25,000 scale Acid Sulfate Soils Risk Map for Botany Bay*, shows that the site is located predominantly in an area of disturbed terrain to a depth up to 4 metres below ground level with the eastern and southern reaches located within an area of no known occurrence as shown below in Figure 3.

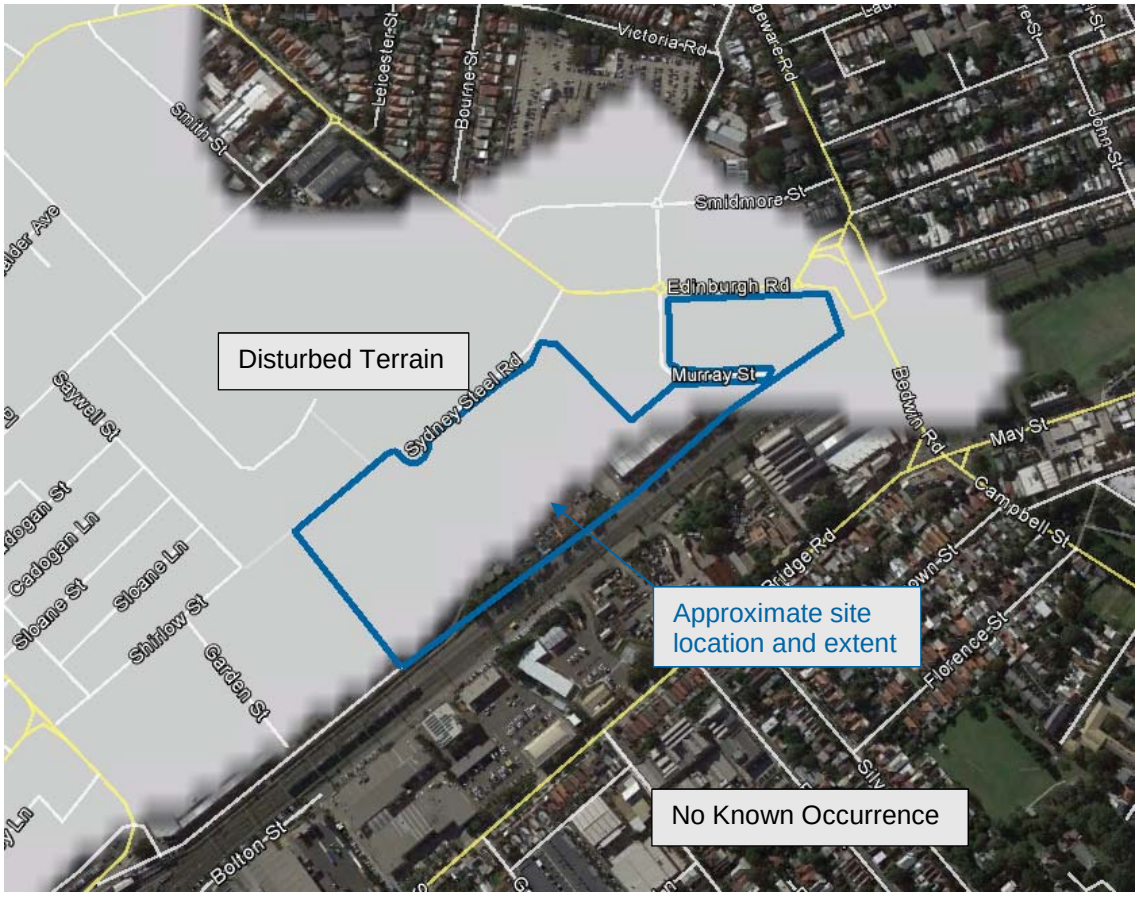

Figure 3 – Excerpt from 1:25,000 Acid Sulfate Soils Risk Map for Botany Bay

2.6 Hydrology

The closest receiving water body from the site is expected to be Sydney Water's Sydenham Basin, located immediately southwest of the site. The nearest natural water body from the site is the Alexandra Canal, located approximately 1,300 m south of the site. Due to the urban environment surrounding the site, surface water is expected to enter the stormwater drainage system prior to discharge into the Sydenham Basin and/or the Alexandra Canal.

2.7 Geological setting

Reference to the *Department of Mineral Resources, 1:100,000 Geological Series Sheet 9130 for Sydney*, shows that the site is underlain predominantly by Quaternary Alluvium (Qhs), with the eastern and southern reaches underlain by the Wianamatta Group (Rwa) as shown below in Figure 4.

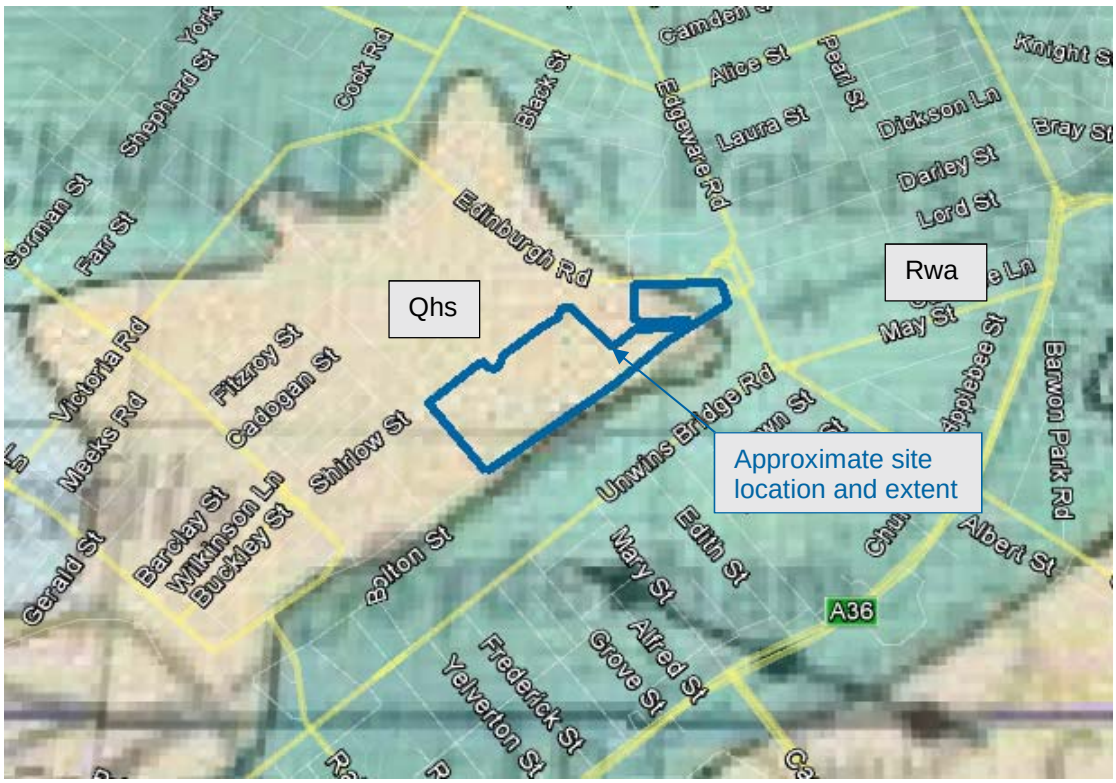

Figure 4 – Excerpt from 1:100,000 Geological Series sheet 9130

The Quaternary Alluvium unit is described as comprising peat, sandy peat and mud; whilst, the Wianamatta Group is described as comprising black to dark grey shale and laminate.

2.8 Hydrogeology

Mapping

Sandstone, shale, siltstone and other sedimentary basins with low to high potential for groundwater movement dominates the hydrogeology. Salinity levels range from less than 1,000 to greater than 14,000 milligrams per litre (Department of Water Resources, 1987).

Existing Groundwater Bores

A review of the NSW Department of Primary Industries – Office of Water / Water Administration Ministerial Corporation information on 3 August 2017 indicates that there are no registered boreholes within the investigation area. There are two registered boreholes within 500 m radius of the site: GW110247 and GW105938. GW110247 shows a standing water depth of 31m and GW105938 does not have any recorded details.

2.9 Site history

The Phase 1 contamination assessment GHD (2017b) provided site-specific historical information on the investigation area. The Phase I assessment also included aerial photographs which were reviewed as part of this assessment. A summary of the review of the historical information and aerial photographs, with regard to historical site use, is provided in Table 2.

Table 2 – Site history summary

Information	Details
Site address	1A, 1B and 1C Sydney Steel Road, 11 Sydenham Road, Murray Street (west), Marrickville
Current land use	Industrial Complex
History of site land use	The site has been used for commercial / industrial purposes since 1914 with the property owned by commercial / industrial companies. Key ownership includes: • Spurway Cooke Industries Pty. Limited (1993), Unilever Australia Limited (1987), • Commonwealth Moulding Pty Limited (1983). Marrickville Margarine Pty Limited (1980) and The Sydney Steel Company Limited (1975).
History of surrounding land use	The surrounding areas have been used for commercial / industrial use and railway line since 1914. The 1943 aerial photograph indicates the presence of a former brick pit immediately south east of the site.

In general, the investigation area has been used for commercial / industrial purposes for over 100 years. The surrounding areas of the investigation area have been used for railway lines, commercial and light industrial land purposes.

2.10 Preliminary conceptual site model

Based on the current information, including the Phase I contamination assessment report (GHD 2017b) and site inspection, the following conceptual site model (CSM) has been developed for the investigation area.

2.10.1 Sources

The investigation area and surrounding areas have a history of commercial / industrial use. Surrounding land use included the railway corridor, and commercial and light industrial land use.

Additionally, based on previous construction works, fill materials are likely to be present across the investigation area including the existing rail corridor and surrounding commercial / industrial properties (i.e. processed foods, plastics and steel producers).

Contaminants of potential concern related to the historical and current land use were discussed in phase 1 contamination assessment report (GHD 2017) and include:

- Asbestos
- Hydrocarbons including total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH) and phenols
- Heavy metals, including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc
- Organochlorine pesticides (OCP), organophosphorus pesticides (OPP) and polychlorinated biphenyls (PCB)

2.10.2 Pathways

The primary pathways by which receptors could potentially be exposed to the sources of contamination outlined above are considered to be:

- Dermal contact with contaminated shallow soil or groundwater
- Incidental ingestion of contaminated soils or groundwater
- Inhalation of volatile compounds from contaminated soils or groundwater
- Vertical and horizontal migration of contamination through the unsaturated zone into the saturated zone and subsequent horizontal migration within the groundwater with discharge to surface waters
- Surface runoff and sediment transport into stormwater drainage and subsequent transport and discharge to surface waters
- These pathways have potential to be present during construction and operation of the metro infrastructure.

2.10.3 Receptors

Potential receptors during the construction and operational phase of metro infrastructure on these sites may include:

- Human health during construction phase – metro infrastructure construction workers and current and commercial land users. Construction workers are considered the most likely sensitive receptors at risk during the project construction phase.
- Human health during operation phase - metro infrastructure operation workers and future commercial land users. Future metro infrastructure operation workers are considered the most sensitive receptors at risk during the metro operation phase.
- Environment – groundwater and surface water.

3. Basis for contamination and acid sulfate soil assessment

3.1 Relevant guidelines

The framework for the contamination assessment made herein, was developed in accordance with guidelines "made or approved", by the NSW EPA under Section 105 of the *Contaminated Land Management Act, 1997*. These guidelines include, but are not limited to the following:

- ASSMAC (1998), *Acid Sulfate Soils Assessment Guidelines.*
- NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines.*
- NSW EPA (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.*
- NEPM (2013) *National Environment Protection (Assessment of Site Contamination) Amendment Measure (No.1)*, National Environment Protection Council (NEPC).
- NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste.*
- NSW EPA (2014) *Waste Classification Guidelines, Part 4: Acid Sulfate Soil*
- NSW DECC (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.*
- NSW EPA (2017) *Contaminated Land Management: Guidelines for NSW Site Auditor Scheme (3rd edition).*

3.2 Contamination assessment criteria

The following provides a summary of the criteria selected for the assessment. The individual criteria are detailed on the assessment results tables in Appendix F.

3.2.1 Soil assessment criteria

Site investigation levels have been adopted from assessment criteria presented in NEPM (2013).

Given the investigation area zoning is general industrial, health screening levels (HSL) and health investigation levels (HIL) for commercial / industrial have been selected as the investigation screening criteria, and are discussed in the following sections. Ecological investigation levels (EIL) and ecological screening levels (ESL) for commercial / industrial use are also discussed.

Health screening levels (HSL) for petroleum hydrocarbons

The NEPM (2013) presents health screening levels (HSLs) for fuel derived petroleum hydrocarbons, which are generic criteria based on a series of reasonably conservative assumptions in order to be protective of human health for a variety of land use types. For the purposes of selecting health based investigation levels for this site, an industrial/commercial land use has been adopted.

Health investigation levels (HILs) for other contaminants

For non-petroleum hydrocarbons, the NEPM 2013 HILs have been adopted for a commercial industrial purpose. The HILs take into account direct contact pathways, including incidental ingestion and dermal contact.

Health criteria for intrusive maintenance workers (IMW)

The NEPM 2013 HSL for fuel derived petroleum products were adopted as initial screening criteria to assess the potential risk to intrusive maintenance workers in construction trenches and excavations. The HSL were selected because they are more stringent than other IMW published values.

Ecological investigation levels (EILs) and ecological screening levels (ESLs)

The NEPM (2013) includes ecological investigation levels (EIL) for heavy metals and naphthalene and ecological screening levels (ESL) for petroleum hydrocarbons. The applicability of ecological screening levels (ESLs) and ecological investigation levels (EILs) to the investigation area were evaluated. The construction of S2B metro infrastructure within the investigation area will likely remove the near surface soil and the majority of the surface will be covered by hard surface. These will reduce the potential for terrestrial ecosystem exposed to contamination within the investigation area.

The EILs and ESLs have therefore not been adopted for this contamination assessment.

Management limits

The NEPM (2013) includes "management limits" for total petroleum hydrocarbons (TPH). Management limits are applied after consideration of relevant HSLs. Where TPH concentrations are less than the adopted HSL, consideration will be given to management limits for a commercial/industrial land use.

Management limits for coarse soil have been assumed given the coarse nature of fill material at these four sites.

Asbestos

The amended NEPM provides guidance relating to the assessment of known and suspected asbestos contamination in soil and addresses both friable and non-friable forms of asbestos. The health screening levels for asbestos in soil have been adopted from the Western Australian Department of Health (WA DoH) *Guidelines for Remediation and Management of Asbestos Contaminated Sites in Western Australia* (WA DoH 2009). The NEPM also refers to the WA DoH Guidelines for further information on risk assessment, remediation and management procedures.

The NEPM guidance emphasises that the assessment and management of asbestos contamination should take into account the condition of the asbestos materials and the potential for damage and resulting release of asbestos fibres. Therefore, for the purposes of assessing the significance of asbestos in soil contamination, three terms are used as summarised below:

- Bonded asbestos containing material (Bonded ACM) – sound condition although possibly broken or fragmented and the asbestos is bound in a matrix such as cement or resin.
- Fibrous asbestos (FA) – friable asbestos materials such as severely weathered ACM and asbestos in the form of loose fibrous materials such as insulation.
- Asbestos fines (AF) – including free fibres of asbestos, small fibre bundles and also fragmented ACM that passes through a 7 mm x 7 mm sieve.

From a risk to human health perspective, FA and AF are considered to be equivalent to "friable" asbestos in Safe Work Australia (2011), which is defined therein as '*material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos*'.

Bonded asbestos ACM in sound condition represents a low human health risk. However, both FA and AF materials have a significantly higher potential to generate, or be associated with, free asbestos fibres and may represent a significant human health risk if disturbed and fibres are made airborne.

Appendix B (Management of Small-Scale Low-Risk Soil Asbestos Contamination) of the WA DoH Guidelines (2009) describes a simplified action level based on visual inspection of surface contamination. It should be noted that this process is intended for single residential blocks where the asbestos is bonded, present at the surface only, and there is little free fibre present – hence this is not considered directly applicable to the site, but may be a useful "rule of thumb" for approximating the significance of observed surface contamination.

3.2.2 Assessment criteria – groundwater

Based on the site hydrogeology discussed in **Section 2,** it has been assumed for this assessment that groundwater in the area has potential to discharge to the nearby aquatic system of Alexandra Canal. Therefore, the assessment criteria nominated for this assessment are the Australian and New Zealand Environment and Conservation Council Guidelines for Water Quality (ANZECC, 2000) criteria for the 95% protection of freshwater aquatic species.

No potable water abstractions have been identified and the investigation area is supplied with reticulated town water supplies. Therefore, the Australian Drinking Water Guidelines (ADWG) have not been adopted for this assessment. .

The HSLs for petroleum hydrocarbons for commercial / industrial land use have also been adopted for the assessment of groundwater to characterise the risk posed to receptors by potential hydrocarbon vapour intrusion.

To assess the potential health risk to the metro construction workers from dermal contact and incidental ingestion of groundwater, the National Health and Medical Research Council (NHMRC 2008)) Guidelines for Managing Risks in Recreational Water have been adopted. These guidelines considered the pathway of dermal contact and ingestion for recreational activities and considered conservative for an industrial scenario.

To evaluate the groundwater disposal option during the construction phase of the S2B metro infrastructure, the groundwater analytical results have also been compared to Sydney Water's Trade Waste Acceptance Standards 2017-18 (Sydney Water June 2017).

3.3 Acid sulfate soil assessment criteria

Field PASS testing

The Acid Sulfate Soils Management Advisory Committee 1998 (ASSMAC) manual provides procedures for field screening (pH_F and pH_{FOX}) for actual acid sulfate soils (AASS) and potential acid sulfate soils (PASS).

Field pH measurements

- pH readings of pH <4, indicate that AASS are possibly present
- pH readings of pH >4, indicate the absence of 'AASS, however does not give any indication of the PASS.

Field Peroxide measurements

A positive peroxide test indicating one of more of the following may indicate the presence of PASS:

- Change in colour of the soil from grey to brown tones

- Effervescence
- Release of sulfur smelling gases such as sulfur dioxide and hydrogen sulphide
- A lowering of the soil pH by at least one unit
- A final pH <3.5.

Laboratory analysis

The assessment criteria for acid sulfate soils adopted for the site includes the acid sulfate action guidelines as stated in the *Acid Sulfate Manual*, 1998 from the NSW Acid Sulfate Soil Management Advisory Committee. The guidelines assess results for ASS testing and determine whether disturbed soils at the site need to be treated or managed. The guidelines for soils with fine to coarse texture are summarised in Table 3.

Table 3 – Action criteria for acid sulfate soils

Soil Texture	Description	Action Criteria		
		S_{POS} (%S)	TPA (mole H+/tonne)	TSA (mole H+/tonne)
Soil disturbance < 1000 tonnes				
Coarse	Sands to loamy sands	0.3	18	18
Medium	Sandy loams to light clays	0.6	36	36
Fine	Heavy clays to silty clays	0.1	62	62
Soil disturbance > 1000 tonnes				
Coarse	Sands to loamy sands	0.3	18	18
Medium	Sandy loams to light clays	0.3	18	18
Fine	Heavy clays to silty clays	0.3	18	18

Notes to table:

TPA – Titratable peroxide acidity

TSA – Titratable sulfidic acidity

SPOS - Peroxide Oxidisable Sulfur

Given the unknown quantity of soil disturbance at the site, the more stringent action criteria for > 1000 tonnes of disturbance has been applied.

3.4 Waste classification guidelines

For waste classification, the concentrations of the chemicals in the samples analysed have been compared to the criteria outlined in Table 2 of the NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste.* The guidelines provide criteria for assessing the appropriate waste classification for material requiring offsite disposal and subsequently assessing the required disposal location for solid and liquid wastes. The classification process for non–liquid wastes focuses on the potential for the waste to release chemical contaminants into the environment through contact with liquids (leachates).

The first test used to chemically assess waste is the Specific Contaminant Concentration (SCC) test, which determines the total concentration of each contaminant in the waste sample. The guidelines set different maximum levels for the total concentration of each contaminant in order for waste to be classified as either general solid waste, restricted solid waste or hazardous waste.

The toxicity characteristics leaching procedure (TCLP) test estimates the potential for waste to release chemical contaminants into a leaching liquid. The guidelines set different maximum levels of the leachable concentration of each contaminant in order for waste to be classified as general solid waste, restricted solid waste or hazardous waste. These criteria need to be considered in combination with less conservative SCC categories.

Given the presence of ASS or PASS within the investigation area, NSW EPA (2014) *Waste Classification Guidelines, Part 4: Acid Sulfate Soil* should be considered for waste classification of material within the investigation area.

4. Methodology

4.1 Preliminary works

GHD carried out the following activities in preparation for the fieldwork investigation:

- Preparation of the following documentation:
  - Project safety plan
  - Job safety and environmental analysis
  - Permit to Excavate.
- Undertake a Dial Before You Dig services search
- Reviewed the health, safety and environmental documentation of GHD subcontractors (i.e. SWMS)
- Undertake electronic scanning and location of buried services on site, using a qualified services locator
- Prior to commencing fieldwork, GHD conducted an on-site health, safety and environmental toolbox of the investigation staff.

4.2 Subsurface investigation

Fieldwork was undertaken from the 4 to 17 October 2017 and comprised the drilling of ten boreholes using a Commachio 205 track mounted drilling rig as follows:

- Three boreholes as part of the Sub-Portion 4 (SP4) investigation (SRT_LD681 – SRT_LD683).
- Seven boreholes as part of the Sub-Portion 5 (SP5) investigation (SRT_BH090 to SRT_BH096). These boreholes were formerly known as RCD-G01 – RCD-G07 in the tender documents and the laboratory testing makes reference to these borehole IDs.

A summary of the borehole locations and surface reduced levels (RLs) are presented below in Table 4. The borehole locations are also illustrated on Figure B1, Appendix B.

Table 4 – Summary of borehole locations

Borehole ID	Tender Borehole ID	Surface RL (m AHD)	Easting	Northing
SRT_BH090	RCD-G01	3.57	330704.82	6246203.85
SRT_BH091	RCD-G02	3.72	330782.28	6246272.84
SRT_BH092	RCD-G03	3.82	330835.59	6246217.22
SRT_BH093	RCD-G04	3.76	330760.82	6246140.53
SRT_BH094	RCD-G05	4.06	330908.80	6246382.73
SRT_BH095	RCD-G06	1.47	330636.21	6246066.11
SRT_BH096	RCD-G07	4.32	331063.40	6246454.70
SRT_LD681	-	3.81	330836.46	6246265.46
SRT_LD682	-	5.33	330940.68	6246247.30

Borehole ID	Tender Borehole ID	Surface RL (m AHD)	Easting	Northing
SRT_LD683	-	4.18	330945.66	6246352.77

The boreholes were advanced through the superficial soils at the site using solid flight augers. During augering, Standard Penetration Tests (SPTs) were carried out at nominal 1.5 m depth intervals to assess in-situ strength characteristics and recover samples for laboratory testing. Boreholes SRT_BH090 to SRT_BH096 were then progressed by continuous NMLC core drilling within weathered to fresh bedrock following SPT refusal (i.e. SPT "N" > 50 blows per 300 mm).

Boreholes SRT_LD681 – SRT_LD683 were terminated at the scheduled depth of 4 m below ground level (bgl) within superficial soils; whilst, boreholes SRT_BH090 to SRT_BH096 were terminated upon recovery of minimum 5 m of Class III or better Ashfield Shale according to Pells et al (1998). Recovered rock cores were carefully boxed, point load tested and photographed on site.

Boreholes were located on site using salient features and then surveyed using a Trimble R10 global navigation satellite system and site tablet.

Soil samples for contamination assessment were collected at surface and every 0.5 meters through the drilling profile. Soil samples were screened in the field using a calibrated photoionisation detector (PID) for assessment for volatile organic compounds.

Groundwater monitoring wells were installed in boreholes SRT_BH092 (RCD-G03) and SRT_BH094 (RCD-G05). Following installation, the monitoring wells were developed by removing a minimum of three well volumes of groundwater using a disposable bailer.

The fieldwork was conducted under the full-time supervision of a geo-environmental engineer from GHD, who logged the encountered profiles and directed in-situ sampling and testing. All geotechnical samples were delivered to GHD's Artarmon based materials National Association Testing Authority (NATA) accredited laboratory and Envirolab. Soil samples for contamination assessment were delivered to Eurofins, a NATA accredited laboratory for chemical analysis of contaminants of potential concern (COPC).

4.3 Groundwater sampling

Groundwater sampling from the monitoring wells installed in SRT_BH092 (RCD-G03) and SRT_BH094 (RCD-G05) was carried out on 13 November 2017, approximately four weeks after installation.

The groundwater wells were sampled as follows:

- Prior to gauging the standing water level (SWL) in each monitoring well. The well was allowed to stand for a few minutes to allow the SWL to stabilise under atmospheric conditions.
- The depth of the SWL and non aqueous phase liquid (NAPL), if present, were measured at each monitoring well using an electronic interface meter, along with the total well depth with all measures recorded from the top of casing.
- Representative groundwater samples were collected from the monitoring wells using the following sampling techniques:
  - Each well was purged using low-flow sampling techniques with dedicated tubing that is Teflon free. The depth of placement of the groundwater sample inlet tube were recorded during sampling and were consistent across monitoring locations.

- Field parameters (pH, electrical conductivity (EC), oxygen redox potential, dissolved oxygen (DO) and temperature) were measured and recorded during purging to ensure that extracted groundwater is representative of the surrounding groundwater conditions. When field parameters reach equilibrium, i.e. consecutive measurements are within 10% of each other for EC, redox and pH, groundwater were deemed to be representative and groundwater samples were collected.
- Visual observations were recorded, in particular, the absence or presence of a hydrocarbon sheen or odour were recorded during purging.
- Retrieved groundwater samples were immediately placed into laboratory prepared bottles suitable for the requested analyses.
- Sample bottles were filled directly from the pump with a minimal amount of air contact and vials for volatile organic analysis were filled to minimise headspace. Samples that are to be analysed for dissolved metals were field filtered with a dedicated filter prior to placing the sample into the sample bottle.
- The containers were labelled with the job number, sample identification and date collected.
- Following the collection of each sample, the bottles were placed immediately into ice filled coolers for preservation prior to and during transportation to the project laboratories.
- Samples were accompanied with chain of custody documentation to the project laboratory and were submitted within holding times appropriate to the analysis required.
- Dedicated sampling equipment (i.e. tubing, bailers, filters etc.) were disposed of after each well is sampled with other sampling equipment decontaminated using a mixture of phosphorus free detergent solution and potable water and then rinsed with potable tap water between each well location.

Calibration sheets of interface probe and water quality metre is included in Appendix F. Groundwater purging sheets are also included in Appendix E.

4.4 Laboratory testing

4.4.1 Geotechnical laboratory testing

The geotechnical laboratory testing undertaken included:

- Moisture Content (16 tests).
- Particle Size Distribution (PSD) (5 tests).
- Atterberg and linear shrinkage (11 tests).
- Hydrometer (6 tests).
- Shrink-swell index (three tests).
- California Bearing Ratio (CBR) 10 day soaked (3 tests).
- pH, sulphate, chloride and electrical conductivity testing for durability (9 tests).
- Acid Sulfate soil screening (29 tests).
- Sulfate reducible Chromium (8 tests).
- Oedometer (2 tests).
- Unconfined Compressive Strength (4 tests).

The laboratory test reports are contained in Appendix D.

4.4.2 Contamination laboratory testing

The analytical schedule proposed for each sampling location is presented in Table 5. The laboratory analysis is based on the findings of the phase 1 contamination assessment, the preliminary conceptual site model discussed in this report. In summary the soil samples were analysed as follows:

- One targeted soil sample from each borehole sampling location were submitted for laboratory analysis of COPC including asbestos, eight (8) heavy metals, TRH, BTEX, PAH, phenols, VCH or VOC, OCP, OPP and PCB.
- An additional two targeted soil samples from each borehole sampling location was submitted for laboratory analysis of COPC including eight (8) heavy metals, TRH, BTEX, PAH.

QA/QC sampling included intra and inter-laboratory duplicate samples (approximately 5%), two trip blanks and two trip spike samples.

For waste classification, seven selected soil samples were analysed for TCLP heavy metals and TCLP PAHs.

Table 5 – Contamination laboratory testing

Suite	Primary soil samples		Field quality control samples
	Sub Portion 4	Sub Portion 5	
No of Sampling Locations	3	7	-
Metals, TPH, BTEX, PAH	10	22	2
Asbestos identification	3	7	-
Phenols	3	7	-
VCH or VOC	3	7	-
OCP/OPP/PCB	3	7	-
Trip blank – BTEX /TPH C6-C10	-	-	1
Trip spike – BTEX	-	-	1
TCLP metals or PAH	1	6	-

4.5 Quality assurance / quality control for contamination assessment

4.5.1 Field program

All fieldwork was conducted in general accordance with GHD's Standard Field Operating Procedures which are aimed at ensuring that all environmental samples are collected by a set of uniform and systematic methods, as required by GHD's Quality Assurance system. Key requirements of these procedures are as follows:

- Appropriately trained and experienced staff who documented site activities using photographs and notes on standard field forms such as daily site records and sampling logs.
- Decontamination procedures - including the use of new disposable gloves for the collection of each sample, decontamination of the sampling equipment between each sampling location (using phosphate free detergent) and the use of dedicated laboratory provided sampling containers.
- Logging procedures - all samples are described using a recognised system.
- Calibration procedures - all field monitoring equipment is appropriately calibrated.
- Sample identification procedures - collected samples were immediately transferred to sample containers of appropriate composition and preservation for the required laboratory analysis. All sample containers were clearly labelled with a sample number, sample location, sample depth (for soil samples) and sample date. The sample containers were then transferred to a ice filled cooler for sample preservation during shipment to the testing laboratory.
- Chain of custody information requirements - a chain-of-custody form was completed and forwarded to the testing laboratory.

4.5.2 Field quality control

Field quality control procedures used during the project comprised the collection and analysis of the following:

- **Intra-laboratory (blind) duplicate:** Comprise a single sample that is divided into two separate sampling containers. Both samples are sent anonymously to the project laboratory. Blind duplicates provide an indication of the analytical precision of the laboratory, but are inherently influenced by other factors such as sampling techniques and sample media heterogeneity. Blind duplicates were collected and analysed during the investigation at a frequency of 5% for soil and 10% for groundwater. The soil duplicate pairs consisted of samples RCD-G01_0.2-0.4 / DUP1 and RCD-G06_0.1-0.4 / DUP03. The groundwater duplicate pairs consisted of samples SRT_BH092 / GWQD1 and SRT_BH092 / GWQT1.
- **Trip Blank:** A trip blank is a sample of analyte-free media collected in the same type of container that is required for the analytical test, taken from the laboratory to the sampling site and returned to the laboratory unopened and should return concentrations of COPC below laboratory practical quantitative limits (PQL). One was prepared for the soil sample delivered to the laboratory.
- **Trip spike:** A trip spike sample were provided by the laboratory prefilled with deionised water or soil and spiked with a known concentration of volatile analytes (BTEXN). Trip spike was transferred to a chilled esky for sample preservation prior to and during shipment to the laboratory. Trip spike sample is used to estimate the percentage of volatile contamination lost or introduced during the transport and storage of samples from the time of sampling to the time of analysis. One was prepared for the soil sample delivered to the laboratory.

4.5.3 Laboratory program

The project laboratories adopted their internal procedures and National Association of Testing Authorities (NATA) accredited methods in accordance with their quality assurance system.

Laboratory information

The laboratory used was Eurofins MGT (Sydney) who adopted their internal procedures and NATA accredited methods in accordance with their quality assurance system.

Laboratory QA/QC

Laboratory quality control procedures used during the project included:

- **Laboratory Duplicate Samples**: The analytical laboratory collects duplicate sub samples from one sample submitted for analytical testing at a rate equivalent to one in twenty samples per analytical batch, or one sample per batch if less than twenty samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the test result.
- **Spiked Samples**: An authentic field sample is 'spiked' by adding an aliquot of known concentration of the target analyte(s) prior to sample extraction and analysis. A spike documents the effect of the sample matrix on the extraction and analytical techniques. Spiked samples will be analysed for each batch where samples are analysed for organic chemicals of concern.
- **Certified Reference Standards**: A reference standard of known (certified) concentration is analysed along with a batch of samples. The Certified Reference Standard (CRS) or Laboratory Control Spike provides an indication of the analytical accuracy and the precision of the test method and is used for inorganic analyses.
- **Surrogate Standard / Spikes**: These are organic compounds which are similar to the analyte of interest in terms of chemical composition, extractability, and chromatographic conditions (retention time), but which are not normally found in environmental samples. These surrogate compounds are 'spiked' into blanks, standards and samples submitted for organic analyses by gas-chromatographic techniques prior to sample extraction. Surrogate Standard/Spikes provide a means of checking that no gross errors have occurred during any stage of the test method leading to significant analyte loss.
- **Method Blank**: Usually an organic or aqueous solution that is as free as possible of analytes of interest to which is added all the reagents, in the same volume, as used in the preparation and subsequent analysis of the samples. The reagent blank is carried through the complete sample preparation procedure and contains the same reagent concentrations in the final solution as in the sample solution used for analysis. The reagent blank is used to correct for possible contamination resulting from the preparation or processing of the sample.

The individual testing laboratory conducted an assessment of the laboratory QC programme, internally; however, the results were also independently reviewed and assessed by GHD.

Laboratory duplicate samples should return RPDs within the NEPM acceptance criteria of ±30%. Percent recovery is used to assess spiked samples and surrogate standards. Percent recovery; although dependent on the type of analyte tested, concentrations of analytes and sample matrix; should normally range from about 70-130%. Method (laboratory) blanks should return analyte concentrations as 'not detected'.

5. Investigation results

5.1 Subsurface conditions

Reference to the borehole logs in Appendix C should be made for a detailed description of the subsurface conditions encountered. In general terms, subsurface conditions comprised fill materials overlying alluvial and/or residual soil overlying bedrock. Table 6 presents a summary of the sub-surface profile encountered in each of the boreholes.

Table 6 – Summary of sub-surface profile

Borehole ID	Surface RL (m AHD)	Elevation range of material / stratigraphic unit (m AHD)					
		Concrete	Asphalt	Fill	Alluvium	Residual	Bedrock
SRT_BH090	3.57	3.57 - 3.42	-	3.42 - 1.27	-	1.27 - -2.43	-2.43 - -11.76
SRT_BH091	3.72	3.72 - 3.59	-	3.59 - 2.42	-	2.42 - -3.28	-3.28 - -14.18
SRT_BH092	3.82	3.82 - 3.66	-	3.66 - 3.42	-	3.42 - -2.38	-2.38 - -9.33
SRT_BH093	3.76	3.76 - 3.66	-	3.66 - 2.06	-	2.06 - -1.84	-1.84 - -9.39
SRT_BH094	4.06	-	4.06 - 4.01	4.01 - 3.56	3.56 - 3.06	3.06 - -7.74	-7.74 - -15.44
SRT_BH095	1.47	-	1.47 - 1.42	1.42 - 1.07	1.07 - 0.47	0.47 - -7.53	-7.53 - -19.18
SRT_BH096	4.32	4.32 - 4.11	-	4.11 - 3.82	-	3.82 - -6.18	-6.18 - -16.38
SRT_LD681	3.81	3.81 - 3.63	-	3.63 - 3.31	-	3.31 - -0.19	-
SRT_LD682	5.33	-	5.33 - 5.28	5.28 - 4.73	-	4.73 - 1.33	-
SRT_LD683	4.18	-	4.18 - 4.13	4.13 - 4.03	4.03 - 3.38	3.38 - 0.18	-

The following subsections provide a generalised description of the materials encountered at the test locations.

5.1.1 Fill materials

Fill material was encountered in each of the boreholes. The fill material was of variable composition and generally comprised clays and sands with varying fractions of gravels and silts.

Surface materials overlying the fill generally comprised concrete of thickness 0.10 – 0.21 m or asphalt of thickness 0.05 m.

5.1.2 Alluvium

Alluvium was encountered in boreholes SRT_BH094, SRT_BH095 and SRT_LD683. The alluvium generally comprised clay of high plasticity and based on the SPT “N” values, assessed as being of very soft to firm consistency.

5.1.3 Residual Soil

Residual soil was encountered in each of the boreholes. The residual soil material generally comprised clay of high plasticity and based on the SPT “N” values, was assessed as being of stiff to very stiff consistency.

5.1.4 Bedrock

Bedrock was encountered in boreholes SRT_BH090 – SRT_BH096. Bedrock comprised siltstone or interlaminated sandstone / siltstone to borehole termination depths. In general, rock strengths graded from very low to high strength and weathering graded from highly weathered to fresh with increasing borehole depth.

5.1.5 Evidence of contamination

Evidence of building rubble (predominantly bricks and concrete fragments) was observed in the fill materials in boreholes SRT_BH090 and SRT_BH093. Further, a strong hydrocarbon odour was observed in borehole SRT_BH093 within the clay fill material from 1.00 to 1.60 m below ground level (RL 2.66 to 2.06 m AHD). No other visual or olfactory evidence of contamination was encountered during soil and groundwater sampling in the remaining boreholes.

A PID was used to screen for volatiles in samples collected during the investigation. The PID readings ranged from less than 0.1 to 5 ppm, indicating low concentrations of volatile chemicals within the soil.

PID readings are included on borehole logs provided in Appendix C.

5.2 Groundwater

Groundwater was observed in the open boreholes SRT_BH090, SRT_BH091, SRT_BH092 and SRT_BH094 during drilling between RL 1.41 and -2.98 m AHD.

Static groundwater levels in installed monitoring wells ranged between 4.095 and 4.323 m below top of casing, which is equivalent to RL -0.513 and -0.035 m AHD.

Based on the measured groundwater depths and subsurface profile, groundwater was encountered in the residual soil stratigraphy.

It should be noted that groundwater levels are likely to fluctuate with variations in climatic and site conditions.

For groundwater quality parameters for samples collected on 13 November 2017 refer to Table 7.

Table 7 – Summary of groundwater quality parameters

Monitoring Well	Installed Strata	DO (mg/L)	EC (uS/cm)	pH	Eh (mV)	Temp (°C)	Observation
SRT_BH092	Residual Soil	0.48	13,612	5.36	136.3	20.5	Clear, no odour, no sheen
SRT_BH094	Residual Soil	0.26	7,669	6.44	-13.9	22.8	Clear, no odour no sheen

5.3 Laboratory testing results

5.3.1 Geotechnical laboratory testing

The results of the laboratory testing are summarised in the subsequent sections. The laboratory certificates are presented in Appendix D. These should be read in conjunction with the Standard Sheets presented in Appendix A, which explain the limitations of the test procedures.

The results of the particle size distribution and hydrometer tests are presented in Table 8.

Table 8 – Particle size distribution and hydrometer test results

Borehole ID	Depth (m bgl)	Description	FMC (%)	Gravel Content % > 2.36 mm	Sand Content % < 2.36 & > 0.075 mm	Silt Content % < 0.075 & > 0.002 mm	Clay Content % < 0.002 mm
SRT_LD681	0.2 – 0.5	FILL: Sandy Clay	-	1	24	37	37
SRT_LD681	0.3 – 0.8	FILL: Sandy Clay	28.5	4	17	37	42
SRT_LD681	0.5 – 0.95	Clay (residual)	-	2	15	40	42
SRT_LD682	0.2 – 0.7	FILL: Clayey Sand	-	24	51	14	11
SRT_LD682	3.5 – 3.95	Clay (residual)	18.9	4	10	86	
SRT_LD683	0.05 – 0.15	FILL: Clayey Sand	10.6	21	58	21	
SRT_LD683	1.5 – 1.95	Clay (residual)	-	4	13	39	44

Notes to table:

FMC – Field Moisture Content

The results of the atterberg and linear shrinkage tests are presented in Table 9.

Table 9 – Atterberg and linear shrinkage test results

Borehole ID	Depth (m bgl)	Description	FMC (%)	LL (%)	PL (%)	PI (%)	Linear Shrinkage (%)
SRT_LD681	0.3 – 0.8	FILL: Sandy Clay	28.5	50	22	28	13.5
SRT_LD682	3.5 – 3.95	Clay (residual)	18.9	47	24	23	9.5

Borehole ID	Depth (m bgl)	Description	FMC (%)	LL (%)	PL (%)	PI (%)	Linear Shrinkage (%)
SRT_LD683	0.15 – 0.5	Clay (alluvium)	-	59	21	38	7
SRT_BH090	3.0 – 3.45	Clay (residual)	26.5	58	25	33	13
SRT_BH092	0.5 – 0.95	Clay (residual)	22.7	59	23	36	-
SRT_BH092	1.5 – 1.95	Clay (residual)	12.8	34	21	13	-
SRT_BH093	2.5 – 2.95	Clay (residual)	27.0	66	24	42	15
SRT_BH094	1.0 – 1.3	Clay (residual)	26.6	68	22	46	20
SRT_BH094	0.6 – 0.9	Clay (alluvium)	27.1	56	22	34	6.5
SRT_BH095	0.5 – 0.95	Clay (alluvium)	29.0	63	22	47	13
SRT_BH095	1.5 – 1.95	Clay (residual)	22.5	72	17	55	17

Notes to table:

FMC – Field Moisture Content LL – Liquid Limit PL – Plastic Limit

PI – Plasticity Index

The results of the vane shear tests are presented in Table 10. The vane shear testing was conducted on the base of the U75 sample prior to sealing. The results of the oedometer tests are presented in Appendix D.

Table 10 – Vane shear test results

Borehole ID	Depth (m bgl)	Description	Vane Shear Strength, s (kPa)	
			Peak	Residual
SRT_BH090	2.5 – 2.75	Clay (residual)	79	11

The results of the CBR tests are presented in Table 11.

Table 11 – California Bearing Ratio test results

Borehole ID	Depth (m bgl)	Description	FMC (%)	SMDD (t/m3)	OMC (%)	CBR (5mm) (%)
SRT_LD681	0.3 – 0.8	FILL: Sandy Clay	28.5	1.55	22.8	4.5
SRT_LD682	1.2 – 1.7	Clay (residual)	-	1.76	17.8	1.5
SRT_LD683	1.5 – 1.95	Clay (residual)	-	1.62	22.1	4.0

Notes to table:

FMC – Field Moisture Content SMDD – Standard Maximum Dry Density

OMC – Optimum Moisture Content CBR – California Bearing Ratio

The results of the pH, sulphate, chloride and electrical conductivity testing for durability are presented in Table 12.

Table 12 – pH, sulphate, chloride and electrical conductivity test results

Borehole ID	Depth (m bgl)	Description	pH	EC (uS/cm)	Cl- (mg/kg)	SO_4^{2-} (mg/kg)
SRT_LD681	0.2 – 0.5	FILL: Sandy Clay	6.3	52	21	40
SRT_LD681	0.3 – 0.8	FILL: Sandy Clay	5.6	120	25	140
SRT_LD681	2.0 – 2.45	Clay (Residual)	4.8	280	150	130
SRT_LD682	0.2 – 0.5	FILL: Clayey Sand	7.4	280	34	220
SRT_LD682	3.5 – 3.95	Clay (residual)	5	240	79	240
SRT_LD683	1.5 – 2.0	Clay (residual)	N/A	160	N/A	N/A
SRT_BH090	4.5 – 4.95	Clay (residual)	8.4	970	700	720
SRT_BH092	0.5 – 0.95	Clay (residual)	4.4	570	600	160
SRT_BH095	0.5 – 0.95	Clay (alluvium)	7.1	65	10	61
SRT_BH095	1.5 – 1.95	Clay (residual)	6.3	130	<10	170

Notes to table:

EC – Electrical Conductivity

Cl- - Chloride ions

SO_4^{2-} - Sulfate ions

The results of the Unconfined Compressive Strength (UCS) tests are presented in Table 13.

Table 13 – UCS test results

Borehole ID	Depth (m bgl)	Description	UCS (MPa)
SRT_BH090	9.30 – 9.46	Interlaminated siltstone and sandstone	9.0
SRT_BH092	9.57 – 9.95	Interlaminated siltstone and sandstone	22.0
SRT_BH094	18.80 – 19.00	Interlaminated siltstone and sandstone	7.2
SRT_BH096	15.20 – 17.60	Siltstone	18.2

5.3.2 Acid Sulfate Soil testing results

Field screening test results

Field peroxide acid sulfate soil screening tests (pH_F and pH_{FOX}) were undertaken on selected natural soil samples recovered from the boreholes. Table G1 in Appendix G provides an overview of the results. The laboratory certificates are supplied in Appendix H.

Peroxide field tests recorded:

- A moderate to extreme reaction in the majority of the samples tested
- A pH_F and pH_{FOX} difference of more than 1 pH unit for the majority of samples tested; and,
- A pH_f of between 4 and 5.5 of nine samples.

A pH_F - pH_{FOX} difference may indicate potential acid sulfate soils. The greater the difference between the two measurements, the more indicative the value is of a potential acid sulfate soils.

pH values >4 and <5.5 are acid and may be the result of some previous or limited oxidation of sulfides, but is not confirmatory of actual ASS (Acid Sulfate Soils Assessment Guidelines, 1998).

SPOCAS and Chromium Reducible Sulfur test results

A total of nine soil samples were selected for SPOCAS and Chromium reducible Sulfur (SCR) testing of PASS soils as indicated by the field test. Table G1 in Appendix G provides an overview of the results. The laboratory certificates are supplied in Appendix H.

Based on the results of the SPOCAS and SCR testing, the following samples exceeded the action criteria for acid sulfate soils (Acid Sulfate Soils Assessment Guidelines, 1998):

- SRT_BH093/1.9 exceeded the S_{POS} and TPA for fine soils with soil disturbance > 1000 tonnes;
- SRT_BH091/2.3-2.5 exceeded the S_{POS} for fine soils with soil disturbance > 1000 tonnes;
- SRT_BH094/0.5-0.8 exceeded the SPOS for fine soils with soil disturbance > 1000 tonnes;
- SRT_BH092/3.0-3.45 exceeded the TPA for fine soils with soil disturbance > 1000 tonnes;
- SRT_LD681/2.9-3.0 exceeded the TPA for fine soils with soil disturbance > 1000 tonnes; and
- SRT_LD683/3.0-3.5 exceeded the S_{POS} and TPA for fine soils with soil disturbance > 1000 tonnes.

No samples exceeded the action criteria for Chromium reducible Sulfur testing.

5.3.3 Contamination soil laboratory testing results

The soil investigation laboratory results are presented in Table F1, Appendix F and laboratory reports are provided in Appendix H, and screened against the guidelines detailed in Section 3. Laboratory analytical results are summarised below.

Asbestos

Seventeen soil samples were selected for laboratory analysis of asbestos absence or presence in soil. Asbestos was not reported in any of the soil samples analysed.

Heavy metals

Thirty-two soil samples collected from the 10 boreholes were tested for heavy metals. The concentrations of analysed heavy metals in these samples were below the adopted health investigation levels for commercial / industrial land use.

BTEX

Thirty-two soil samples collected from the 10 boreholes were tested for BTEX. The concentrations of BTEX in these samples were below the adopted health screening levels for commercial / industrial land use and the management limits for commercial / industrial land use (course soil).

TRH

Thirty-two soil samples collected from the 10 boreholes were tested for TRH. The concentrations of TRH fractions in these samples were below the adopted health screening levels for commercial / industrial land use and the management limits for commercial / industrial land use (course soil) with the exception of concentration of TRH >C16-C34 (4,700 mg/kg) at BCD-G04 (SRT-BH093) (depth of 1.0 to 1.45 m) exceeded the management limits for commercial / industrial land use (coarse soil, 3,500 mg/kg).

PAH

Thirty-two soil samples collected from the 10 boreholes were tested for PAH. The concentrations of benzo(a)pyrene and total PAH in these samples were below the adopted health investigation levels for commercial / industrial land use.

Phenols

Seventeen soil samples collected from the 10 boreholes were tested for phenols. The concentrations of phenolic compounds were below the adopted health investigation levels for commercial / industrial land use.

VCH

Ten soil samples collected from the 10 boreholes were tested for volatile chlorinated hydrocarbons. Concentrations of VCH compounds in these soil samples were below the adopted health screening levels for commercial / industrial land use.

OCP, OPP and PCB

Ten soil samples collected from the 10 boreholes were tested for OCP, OPP and PCB. Concentrations of OCP, OPP and PCB compounds in these soil samples were below the adopted health investigation levels for commercial / industrial land use.

5.3.4 In-situ waste classification

The analytical results used for the preliminary in-situ soil waste classification are summarised and provided in Tables F2 and F3, Appendix F. Laboratory reports are provided in Appendix H. Discussion of ASS classification is included in Section 6.

The soil concentrations were compared to the criteria outlined in Table 1 of the NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste.*

Nine soil samples reported at least one analyte concentration in excess of the CT1 or CT2 waste classification guidelines. Additional TCLP analysis was undertaken for seven samples which exceeded the CT1 and CT2 waste classification guidelines. Two samples (SRT_LD683_0.05-0.15 and SRT_LD683_0.15-0.5) that reported exceedance of CT1 and CT2 waste classification exceedances were not analysed for TCLP due to insufficient sample volume. The results of TCLP analysis were below the general solid waste criteria outlined in Table 2 of the NSW EPA (2014) Waste Classification Guidelines.

Although asbestos was not reported in any of the analysed soil samples, fill material was encountered at every sampling borehole. Whilst fragments of asbestos containing materials

were not detected at any location during the investigation works, it is noted that observation of ACM fragments in boreholes can be limited owing to the investigation methodology and given the presence of demolition rubble in the fill matrix, the potential for ACM in fill material cannot be discounted.

5.3.5 Contamination groundwater laboratory testing results

The groundwater investigation laboratory results are presented in Table F4, Appendix F and laboratory reports are provided in Appendix H. Laboratory analytical results are summarised below, and screened against the guidelines detailed in Section 3.

Heavy metals

Concentrations of metals including cadmium, copper, lead, nickel and zinc in groundwater samples exceeded the screening criteria for protecting freshwater aquatic ecosystems. These elevated heavy metal concentrations are likely to represent background conditions of groundwater aquifer of the investigation area. Groundwater in the investigation area could have high salinity based on NSW Groundwater Pollution Risk Map (Department of Water Resources, 1987) which is relevant to the elevated concentrations of heavy metals in groundwater samples. The field measured electric conductivity of groundwater (see Table 7) also confirmed the high salinity of the groundwater aquifer of the investigation area.

Concentrations of metals were less than the adopted recreational guidelines (See Section 3), which indicatie a low risk to construction workers and future metro maintenance workers in relation to dermal contact and incidental ingestion.

TRH

Concentrations of TRH in both groundwater samples were below the adopted health screening criteria (See Section 3) for commercial and industrial land use, which indicate a low health risk to the metro construction workers and future maintenance workers in relation to vapour intrusion.

BTEX

Concentrations of BTEX in both groundwater samples were below the adopted health screening criteria for commercial and industrial land use and the adopted ANZECC and recreational guidelines (see Section 3). The BTEX analytical results indicate low health risk to the metro construction workers and future intrusive maintenance workers or construction works in relation to vapour intrusion, dermal contact and incidental ingestion.

The BTEX analytical results present a low risk to the aquatic ecosystems.

PAHs and phenols

Concentrations of PAHs and phenols in all groundwater samples were less than the laboratory reporting limits.

However, the standard laboratory reporting limits for two phenolic compounds (2,4,6-trichlorophenol and pentachlorophenol) were higher than the adopted groundwater investigation levels for protection of freshwater aquatic ecosystems. The standard laboratory reporting limit for benzo(a)pyrene was higher than the adopted recreational water quality guidelines.

Given phenolic compounds were not reported in any of the analysed soil samples, it is unlikely that the concentrations of these chemicals in groundwater would exceed the adopted groundwater investigation levels for protection freshwater aquatic ecosystems or recreational water quality guidelines; given benzo(a)pyrene was reported at low concentrations within shallow fill.

OCP, OPP and PCB

Concentrations of OCP, OPP and PCB all groundwater samples were less than the laboratory reporting limits. However, the standard laboratory reporting limits for a number of OCP, OPP and PCB were higher than the adopted groundwater investigation levels for protection of freshwater aquatic ecosystems.

Given OCP, OPP and PCB were not reported in any of the analysed soil samples, it is unlikley that the concentrations of these chemicals in groundwater would exceed the adopted groundwater investigation levels for protection freshwater aquatic ecosystems.

Comparison to Sydney Water's Trade Wastewater Acceptance Standards

The groundwater water analytical results were within Sydney Water's Trade Wastewater Acceptance Standards with the exception of pH values (5.1 and 6.2 respectively) in both groundwater samples outside the acceptance range (7-10). It should be noted that some analysis such as BOD, suspended solid, ammonia were not within the scope of the current geotechnical and contamination investigation.

6. Acid sulfate soil assessment

6.1 Formation of ASS

ASS comprise either existing soils where pyrite has oxidised to result in a soil pH<4, termed Actual Acid Sulphate Soils (AASS) or soils containing sufficient pyrite (Fe_2S) to produce enough sulphuric acid on exposure in order to form AASS, termed Potential Acid Sulphate Soils (PASS).

ASS formation results from the production of pyrite (Iron Sulphide) typically from sulphur within seawater and iron within estuarine sediments under reducing (oxygen deficient) environments, aided by the presence of organics, mainly within fine grained sediments, sand containing fine grained sediments and peat. PASS are typically found below the water table. AASS are usually the result of exposure or drainage of PASS deposits

ASS commonly occur in waterlogged, saline sediments rich in iron and sulfate. Such environments include tidal flats, salt marshes and mangrove swamps below about RL 5m AHD. They can also form as bottom sediments in coastal rivers and creeks.

ASS have mostly formed in the Holocene period, (i.e. 10,000 years ago to present day) predominantly in the 7,000 years since the last rise in sea level.

It is generally considered that ASS which formed prior to the Holocene period would already have oxidised and leached during periods of low sea level which occurred during ice ages, exposing pyritic coastal sediments to oxygen.

6.2 Discussion of results

The exceedances of the total potential acidity (TPA) and Peroxide Oxidisable Sulfur (S_{POS}) are affected by non-pyritic sulphur (e.g. organics) which will not form acid when exposed but react with the strong oxidising agent to give a 'false positive' result in the SPOCAS test. The SCR results predicts the actual amount of pyritic sulphur only which is existing in the sample. This sulfur can produce acid upon oxidisation. The SCR (once oxidised) plus any existing acidity present represents the maximum acidity that can be produced for the sample.

Although the TPA and S_{POS} action criteria were exceeded in five of the eight samples, the samples tested are not considered PASS or AASS on the following basis:

- The existing acidity (TAA) plus SCR results (where pyritic sulfur was detected above PQL) exceeded the action criteria (34 Mols H+/ tonne vs criteria 18 Mols H+/tonne), but this was due to existing acidity of 27-28 Mols H+/tonne, and not propensity to produce further acidity on exposure.
- The pre-oxidation sulfur (S_{KCl}) measured was at or just above the laboratory practical quantification limit and negligible sulphur has historically been oxidized.
- The materials tested were predominantly residual soil samples which is not an ASS environment.
- Soil and landscape characteristics indicative of ASS were not observed (as described in Table 2.3, Acid Sulfate Soils Assessment Guidelines, 1998).

It is considered that the exceedances in acids reported present are not due to PASS (pyritic) soils and are thus not PASS.

7. Contamination assessment, in-situ waste classification and QA/QC assessment

7.1 Soil contamination

Field observations and soil sample analytical results indicate that the COPC including metals, BTEX, TRH, PAH, phenols, OCP, OPP and PCB in soil at the drilled boreholes and immediate surroundings were below the adopted human health investigation and screening levels for commercial and industrial land use.

Asbestos was not detected in the soil samples analysed. Although asbestos was not reported in any of the analysed soil samples, fill material was encountered at every sampling borehole. Whilst fragments of asbestos containing materials were not detected at any location during the investigation works, it is noted that observation of ACM fragments in boreholes can be limited owing to the investigation methodology and given the presence of demolition rubble in the fill matrix, the potential for ACM in fill material cannot be discounted.

A strong hydrocarbon odour was encountered at RCD-G04 (SRT-BH093) at depth between 1 and 1.6 m. The soil sample collected at this depth (1 to 1.45 m) reported concentration of TRH >C16-C34 in excess of the management limits for commercial / industrial land use for coarse soil. The exceedance of management limits is not considered to pose a potential health risk to the metro construction and operation workers given no reported exceedance of HSL. However exceedance of management limits implies a potential environmental management risk as there is a potential for vapour build up, presence of light non aqueous phase liquid, fire and explosion risk etc . No exceedance of management limits were reported at other sampling locations.

7.2 In-situ waste classification

The in-situ waste classification for the soils encountered at the borehole locations and immediate surroundings is General Solid Waste / General Solid Waste with asbestos.

Given the discussion in **Section 6** regarding acid sulfate soil assessment, AASS and PASS are not likely present within the investigation area. Therefore the natural soil at these borehole locations and immediate surroundings are classified as GSW or VENM.

7.3 Groundwater

Groundwater in the investigation area could have high salinity based on NSW Groundwater Pollution Risk Map (Department of Water Resources, 1987) which is relevant to the elevated concentrations of heavy metals in groundwater samples. Therefore the elevated concentrations of heavy metals in groundwater samples are likely to be representative of the background of groundwater aquifer of the investigation area.

Concentrations of other COPC including BTEX, TRH, PAH, phenols, OCP, OPP and PCB in groundwater samples were either less than the laboratory PQL or the adopted screening criteria.

Based on the groundwater analytical results in this report, the groundwater of the investigation area has a low health risk to the infrastructure construction workers and future infrastructure maintenance workers in relation to inhalation, dermal contact and incidental ingestion pathways. The groundwater of the investigation area also has a low risk to the aquatic ecosystems.

The groundwater analytical results were also compared to the Sydney Water's acceptance standards for trade wastewater, to evaluate the disposal option if the groundwater dewatering is required during the construction. The analytical parameters of the groundwater samples were within the Sydney Water's acceptance standards with the exception of pH values. It should be noted that some additional analysis (i.e. BOD and suspended solids) of groundwater needs to be undertaken and an agreement with Sydney Water needs to be reached prior to the discharge of pumped groundwater into Sydney Water's wastewater system.

7.4 QA / QC assessment

7.4.1 Field QA/QC

Relative percentage differences (RPDs) for soil duplicate sample

As part of the QA/C program, two soil field duplicate samples were analysed. GHD proposed to undertake duplicate analysis at a rate of 10%. However during the investigation work, additional soil samples (i.e. from different soil strata such as bedrock) were analysed. In this instance without additional duplicate samples. Based on the low contaminant concentrations, and the lack of exceedances, the reduced duplicate sample percentage is not considered significant and therefore has no impact to the quality and reliability of the data set.

Concentrations of heavy metals and PAH were reported above the laboratory limit of detection therefore RPD were calculated. However, TRH and BTEX reported concentrations below the limit of laboratory reporting and as a result, it was not possible to calculate a RPD for TRH and BTEX.

RPDs were within the acceptable range with the exception of three exceedances (mercury, nickel, PAH compounds and TRH) shown in Table F5, Appendix F.

These elevated RPDs are considered to be attributed to the heterogeneity of the fill matrix. Further, all concentrations were less than the relevant screening criteria.

Relative percentage differences (RPDs) for groundwater duplicate sample

As part of the QA/C program, two groundwater field duplicate samples (one intra-laboratory and one inter-laboratory) were analysed.

Concentrations of heavy metals, TRH and BTEX were reported above the laboratory limit of detection therefore RPD were calculated. However PAH reported concentrations below the limit of laboratory reporting and as a result, it was not possible to calculate a RPD for PAH.

RPDs were within the acceptable range (30% for non-organics and 50% for organics) with the exception of three exceedances (chromium and TRH) shown in Table F6, Appendix F.

These RPD exceedances are considered to have resulted from the low (less than 10 times laboratory reporting limits) concentrations detected in samples, where a relatively small change in concentration give rise a large RPD Value.

Trip blank

The trip blank samples prepared during the investigation resulted in all analytes below the laboratory detection limit. The analytical results of the trip blanks is summarised in Table F7, Appendix F.

Trip spike

The trip spike samples prepared during the investigation resulted in recoveries of analytes within the acceptable range of 70 to 130%. The analytical results of the trip spikes is summarised in Table F7, Appendix F.

Rinsate

The rinsate sample prepared during the groundwater sampling resulted in all analytes below the laboratory detection limits. The analytical results of the Rinsate sample is summarised in Table F7, Appendix F.

7.4.2 Laboratory quality control

Holding times

All analytes were extracted within the laboratory's technical holding times.

Laboratory programme

The NATA certified laboratory utilised for this assessment (Eurofins MGT) undertook their own quality assurance and quality control procedures for sample analysis. GHD has reviewed the internal laboratory control data provided within the laboratory reports, which are attached as **Appendix H.**

Report 566778

RPDs for laboratory duplicate samples for cadmium (56%) and zinc (44%) were above the acceptance criterion (30%).

No concentrations of these heavy metals were reported in excess of adopted health investigation levels in soil samples analysed, therefore these RPD exceedances of laboratory duplicate samples are not considered to be of concern.

Report 567987

RPDs for laboratory duplicate samples for nine PAH compounds (from 59 to 73%) and lead (36%) were above the acceptable criterion (30%).

No concentrations of these heavy metals were reported in excess of adopted health investigation levels in soil samples analysed, therefore these RPD exceedances of laboratory duplicate samples are not considered to be of significant risk.

Report 568310

No outliers in relation to RPD of laboratory duplicate samples were reported.

Report 568142

RPD for laboratory duplicate samples for indeno(1,2,3-cd)pyrene (32%) were above the acceptable criteria (30%)

No concentrations of PAH compounds were reported in excess of adopted health investigation levels in analysed soil samples and this marginal RPD exceedance of laboratory duplicate sample is not considered to be of concern.

Report 572608

PRD for laboratory duplicate sample for chromium (50%) was above the acceptable criterion (30%), this is due to the marginal difference between the two low concentrations creating an exaggerated RPD %.

All method blank results were less than the laboratory reporting limits, and surrogate spike and laboratory control sample recoveries were within laboratory acceptance criteria.

7.4.3 Discussion

The results of the QA/QC programme demonstrate an acceptable degree of confidence in the analytical programme completed. Overall, the analytical data set is valid and acceptable to base conclusions on the contamination status of the site.

7.5 Refined conceptual site model

Based on the soil and groundwater sample analytical results, the conceptual site model has been refined. The potential SPR linkages are summarised in the Table 14.

Table 14 – Refined conceptual site model

Source	Potential Pathway	Potential Receptor	Potentially complete?
Asbestos containing material within fill soil	Inhalation	Future metro infrastructure construction workers and commercial / industrial workers	Potentially if asbestos in fill soil is disturbed

8. References

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NEPM (2013) National Environment Protection (Assessment of Site Contamination) Amendment Measure (No.1), National Environment Protection Council (NEPC).

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NSW EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste.

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Sydney Water (2016) Industrial customers Acceptance standards and charging rates for 2017-18 (SW233 06/17)

Western Australian Department of Health (2009) Guidelines for Remediation and Management of Asbestos Contaminated Sites in Western Australia

9. Limitations

This report has been prepared by GHD Pty Ltd (GHD) for Transport for New South Wales and may only be used and relied on by Transport for New South Wales for the purpose agreed between GHD and Transport for New South Wales as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Transport for New South Wales arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of this report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

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Except as otherwise expressly stated in this report, GHD makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") at the site. If fill material has been imported on to the site at any time, or if any buildings constructed prior to the prohibition date of asbestos in Australia, 31 December 2003, have been demolished on the site or material from such buildings disposed of on the site, the site may contain asbestos or ACM.

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This report is not provided for third party reliance as per PSC No. 00013/10707, unless it is included in the Asset Management GIS Platform associated with the Tranche 4 Final Asset Condition Report specifically issued for third party reliance provided to the preferred tenderer and subject to the provision of a signed Reliance Letter as agreed between GHD and TfNSW.

Third party reliance details and contractual terms are contained in the Asset Condition Report – Final Tranche 4 Rev 1 dated 27 Apr 17 21/25491 – 216131 (or later revisions).

Appendices

Appendix A – Standard Sheets

GENERAL NOTES

GHD GEOTECHNICS
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The report contains the results of a geotechnical investigation or study conducted for a specific purpose and client. The results may not be used or relied on by other parties, or used for other purposes, as they may contain neither adequate nor appropriate information. In particular, the investigation does not cover contamination issues unless specifically required to do so by the client.

To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by GHD and the report are excluded unless they are expressly stated to apply in the report.

TEST HOLE LOGGING

The information on the test hole logs (boreholes, test pits, exposures etc.) is based on a visual and tactile assessment, except at the discrete locations where test information is available (field and/or laboratory results). The test hole logs include both factual data and inferred information. Moreover, the location of test holes should be considered approximate, unless noted otherwise (refer report). Reference should also be made to the relevant standard sheets for the explanation of logging procedures (Soil and Rock Descriptions, Core Log Sheet Notes etc.).

GROUNDWATER

Unless otherwise indicated, the water levels presented on the test hole logs are the levels of free water or seepage in the test hole recorded at the given time of measuring. The actual groundwater level may differ from this recorded level depending on material permeabilities (i.e. depending on response time of the measuring instrument). Further, variations of this level could occur with time due to such effects as seasonal, environmental and tidal fluctuations or construction activities. Confirmation of groundwater levels, phreatic surfaces or piezometric pressures can only be made by appropriate instrumentation techniques and monitoring programmes.

INTERPRETATION OF RESULTS

The discussion or recommendations contained within this report normally are based on a site evaluation from discrete test hole data, often with only approximate locations (e.g. GPS). Generalised, idealised or inferred subsurface conditions (including any geotechnical cross-sections) have been assumed or prepared by interpolation and/or extrapolation of these data. As such these conditions are an interpretation and must be considered as a guide only.

CHANGE IN CONDITIONS

Local variations or anomalies in ground conditions do occur in the natural environment, particularly between discrete test hole locations or available observation sites. Additionally, certain design or construction procedures may have been assumed in assessing the soil-structure interaction behaviour of the site. Furthermore, conditions may change at the site from those encountered at the time of the geotechnical investigation through construction activities and constantly changing natural processes.

Any change in design, in construction methods, or in ground conditions as noted during construction, from those assumed or reported should be referred to this firm for appropriate assessment and comment.

GEOTECHNICAL VERIFICATION

Verification of the geotechnical assumptions and/or model is an integral part of the design process - investigation, construction verification, and performance monitoring. Variability is a feature of the natural environment and, in many instances, verification of soil or rock quality, or foundation levels, is required. There may be a requirement to extend foundation depths, to modify a foundation system and/or to conduct monitoring as a result of this natural variability. Allowance for verification by appropriate geotechnical personnel must be recognised and programmed for construction.

FOUNDATIONS

Where referred to in the report, the soil or rock quality, or the recommended depth of any foundation (piles, caissons, footings etc.) is an engineering estimate. The estimate is influenced, and perhaps limited, by the fieldwork method and testing carried out in connection with the site investigation, and other pertinent information as has been made available. The material quality and/or foundation depth remains, however, an estimate and therefore liable to variation. Foundation drawings, designs and specifications should provide for variations in the final depth, depending upon the ground conditions at each point of support, and allow for geotechnical verification.

REPRODUCTION OF REPORTS

Where it is desired to reproduce the information contained in our geotechnical report, or other technical information, for the inclusion in contract documents or engineering specification of the subject development, such reproductions must include at least all of the relevant test hole and test data, together with the appropriate Standard Description sheets and remarks made in the written report of a factual or descriptive nature.

Ref: DS5.5.1 Issue 1.8 Date: 5/10/2012

SOIL DESCRIPTION

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This procedure involves the description of a soil in terms of its visual and tactile properties, and relates to both laboratory samples and field exposures as applicable. A detailed soil profile description, in association with local geology and experience, will facilitate the initial (and often complete) site assessment for engineering purposes.

The method involves an evaluation of each of the items listed below and is in general agreement with both Australian Standard AS 1726 (the Site Investigation Code) and ASTM D2487 and D2488.

MOISTURE

The moisture condition of the soil is most applicable for cohesive soils as a precursor to the assessment of consistency and workability. The moisture condition is described as:-

Dry (dusty, dry to the touch) ***Slightly Moist*** ***Moist*** (damp, no visible water) ***Very Moist*** or ***Wet*** (visible free water, saturated condition)

In addition, the presence of any seepage or free water is noted on the testhole logs.

COLOUR

Colour is important for correlation of data between testholes and during subsequent excavation operations. The prominent colour is noted, followed by (spotted, mottled, streaked etc.) then secondary colours as applicable. Colour is usually described at as-received moisture condition, though both wet and dry colours may also be appropriate.

CONSISTENCY / DENSITY INDEX

This assessment is based on the effort required to penetrate and/or mould the soil, and is an indicator of shear strength.

Granular soils are generally described in terms of density index as listed in AS 1726. These soils are inherently difficult to assess and normally a penetration test procedure (SPT, DCP or CPT) is used in conjunction with published correlations. Alternatively, in-situ density tests can be conducted in association with minimum and maximum densities performed in the laboratory.

Term	Symbol	Density Index (%)
Very Loose	VL	< 15
Loose	L	15 - 35
Medium Dense	MD	35 - 65
Dense	D	65 - 85
Very Dense	VD	>85

Cohesive soils can be assessed by direct measurement (shear vane, CPT etc), or estimated approximately by tactile means and/or the aid of a geological pick as given on the following table. It is emphasised that a "design shear strength" must take cognisance of the mode of testing and the in-situ moisture content with the possible variations of moisture with time.

Term	Symbol	Tactile Properties	Undrained Strength S_u (kPa)
Very Soft	VS	Extrudes between fingers when squeezed in hand	<12
Soft	S	Easily penetrated by thumb about 30-40 mm. Pick head can be pushed in up to shaft.	12-25
Firm	F	Penetrated by thumb 20-30mm with moderate effort. Sharp end of pick pushed in 30-40mm.	25-50
Stiff	St	Indented by thumb about 5mm with moderate effort. Pick pushed in up to 10mm.	50-100
Very Stiff	VSt	Readily indented by thumb nail. Slight indentation produced by pushing pick into soil.	100-200
Hard	H	Difficult to indent with thumb nail. Requires power tools for excavation.	>200

STRUCTURE/OTHER FEATURES

The soil structure is generally applicable to cohesive soils and mainly refers to the presence or absence of joints and layering. Typical terms use are intact (no joints), fissured (closed joints), shattered (open joints), slickensided (polished joints indicative of movement), and stratified/laminated. In addition, the presence of other features (ferricrete nodules, timber inclusions) should also be noted as applicable.

For granular soils, an assessment of grading (well, uniform or poor), particle size (fine, medium etc.) and angularity and shape may also be given.

SOIL TYPE

The soil is described in terms of its estimated grain size composition and the tactile behaviour (plasticity of any fines (less than *0.06 mm)). This system does not differentiate on grading below 0.06 mm, in accordance with the Unified Soil Classification (USC) procedure.

However, in some situations a soil can exhibit different characteristics between the undisturbed and disturbed/remolded condition (eg. 'sand' sized particles which break down a clay). The Soil Type generally relates to the latter state but the former condition should be noted where applicable.

Furthermore, as most natural soils frequently are combinations of various constituents, the primary soil is described and modifed by minor components. In brief, the system is as follows:-

Coarse Grained Soils		Fine Grained Soils	
% Fines	Modifier	% Coarse	Modifier
<5	omit, or use "trace"	<15	omit, or use "trace"
5-12	describe as "with clay/silt" as applicable	15-30	described as "with sand/gravel" as applicable
>12	prefix soil as "silty/clayey" as applicable	>30	prefix soil as "sandy/gravelly" as applicable

(*The 200# sieve (0.075 mm) is commonly used in practice to differentiate between fine and coarse grained soils).

Note: For soils containing both sand and gravel the minor coarse fraction is omitted if less than 15%, or described as "with sand/gravel" as applicable when greater than 15%.

The appropriate USC symbol may also be given after the soil type description in accordance with ASTM D2487 and D2488.

ORIGIN

An attempt is made, where possible, to assess origin (transported, residual, pedogenic, or fill etc.) since this assists in the judgement of probable engineering behaviour. This assessment is generally restricted to field logging activities. An interpretation of landform is a useful guide to the origin of transported soils (e.g. colluvium, talus, slide debris, slope wash, alluvium, lacustrine, estuarine, aeolian and littoral deposits) while local geology and remnant fabric will assist identification of residual soils.

Ref: DS6.5.1.1 Issue 1.6 Date: 19/11/2008

ROCK DESCRIPTION

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This method is based on Australian Standard AS 1726 and is orientated to the field logging of diamond drill core, but may be used for the profiling of natural exposures and cuttings, as applicable. The procedure involves a visual and tactile assessment of the rock mass and the nature of defects within it in order to facilitate a prediction of engineering behaviour.

DESCRIPTION: Rock Type is described on the basis of origin (sedimentary, metamorphic and igneous) with the common types listed below:-

Sedimentary				Metamorphic	Igneous				
Clastic	**Non clastic (chemical)**	**Non clastic (organic)**	**Pyroclastic**			**Acid**	**Intermediate**		**Basic**
Conglomerate Sandstone Siltstone Shale Claystone	Limestone Chert Gypsum Salt	Coal Some Limestone	Tuff Agglomerate Volcanic Breccia	Slate Phyllite Schist Quartzite Gneiss	Extrusive	Rhyolite	Trachyte	Andesite	Basalt
					Intrusive (medium grained)	Quartz Porphyry	Porphyry	Porphyrite	Dolerite
					(coarse grained)	Granite	Syenite	Diorite	Gabbro

Colour is given to assist in rock identification and the interpolation of field data. Colour is usually described at as-received moisture condition, though both wet and dry colours may also be appropriate.

Texture refers to the degree of crystallinity and granularity (grain size) and the fabric relationship between the constituents of a rock. Often only grain size is given for simplified descriptions of certain sedimentary rocks.

Structure and texture are commonly used synonymously in describing rocks since there is no clear delineation between terms. In general, structure refers to large-scale features recognisable in the field (banding, lineation, massive, porphyritic, schistose etc.). For sedimentary rocks in particular, the thickness of sedimentary layering (bedding) is described as:-

Thinly laminated	<6mm	very thinly bedded	20-60mm	medium bedded	0.2-0.6m	very thickly bedded	>2m
Laminated	6-20mm	thinly bedded	60-200mm	thickly bedded	0.6-2m		

In addition, mineral composition, hardness, alteration, cementation is given as applicable.

WEATHERING: The assignment of weathering is somewhat subjective. Weathering assists identification and does not imply engineering behaviour. No distinction is drawn between chemical weathering and alteration for most engineering purposes. These procedures are collectively described as "weathering" using the following terms which do not describe the related strength change. This system is general, and in this format may not apply to all rock types. Carbonate rocks generally do not conform to this classification.

Term	Symbol	Definition
Completely Weathered	CW	Residual soil with rock fabric not visible.
Extremely Weathered	EW	The rock exhibits soil-like properties though the texture of the original rock is still evident.
Highly Weathered	HW	Limonite staining or colour change affects the whole of the rock mass and other signs of chemical or physical decomposition are evident.
Moderately Weathered	MW	Staining extends throughout the whole of the rock mass and the original colour is no longer recognisable.
Slightly Weathered	SW	Partial staining or discolouration of the rock mass, usually by limonite, has taken place.
Fresh	Fr	Rock mass unaffected by weathering.

ESTIMATED STRENGTH: This refers to the strength of the rock substance and not that of the rock mass. The strength of the rock substance is estimated by the Point Load Strength Index $I_S(50)$ and refers to the strength measured in the direction normal to the bedding for sedimentary rocks. A field guide is given below:-

Term	Symbol	$I_S(50)$ MPa	Field Guide (The core refers to a 150mm long x 50mm dia. sample)
Extremely Low	EL	<0.03	Remoulded by hand to a material with soil properties.
Very Low	VL	0.03-0.1	May be crumbled in the hand. Sandstone is "sugary" and friable.
Low	L	0.1-0.3	The core may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
Medium	M	0.3-1.0	The core may be broken by hand with considerable difficulty. Readily scored with knife.
High	H	1-3	The core cannot be broken by unaided hands, can be slightly scratched or scored with knife.
Very High	VH	3-10	The core may be broken readily with hand held hammer. Cannot be scratched with knife.
Extremely High	EH	>10	The core is difficult to break with hand held hammer. Rings when struck with a hammer.

DEFECTS: This important feature can control the overall engineering behaviour of a rock mass. All types of natural fractures across which the core is discontinuous are noted. These fractures include bedding plane partings, joints and other defects but exclude artificial fractures such as drilling breaks. The nature of the defects (joints, bedding partings, seams, zones and veins) is also noted with description, orientation, infilling or coating, shape, roughness, thickness, etc. given generally in accordance with AS 1726. The spacing of natural fractures excludes bedding partings unless there is evidence that they were separated prior to drilling. This notwithstanding, bedding partings maybe considered as planes of weakness in an engineering assessment.

Ref: DS6.5.2.1 Issue 1.6 Date: 04/06/2008

GLOSSARY OF SYMBOLS

GHD GEOTECHNICS
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This standard sheet should be read in conjunction with all test hole log sheets and any idealised geological sections prepared for the investigation report.

GENERAL

Symbol	Description	Symbol	Description
D	Disturbed Sample	PZ	Piezometer Installation
U	Undisturbed Sampled (suffixed by sample size or tube diameter in mm if applicable)	R	Rising Head Permeability Test
		F	Falling Head Permeability Test
C	Core Sample (suffixed by diameter in mm)	PBT	Plate Bearing Test
SV	Shear Vane Test (suffixed by value in kPa)	▸—	Water Inflow (make)
SPT	Standard Penetration Test (with blows per 0.15m)	—◂	Water Outflow (loss)
N	SPT Value	▽	Temporary Water Level
HB	SPT hammer bouncing	▼	Final Water Level
PM	Pressuremeter Test	●	Point Load Test (axial)
PP	Pocket Penetrometer (suffixed by value in kPa)	○	Point Load Test (diametric)
PK	Packer Test	IMP	Impression Device Test

SOIL SYMBOLS

Main Components

SAND, CLAY, SILT, GRAVEL, FILL, TOPSOIL

Minor Components

sandy, clayey, silty, gravelly, vegetation, roots

Note: Natural soils are generally a combination of constituents, e.g. sandy CLAY

ROCK SYMBOLS

Sedimentary

SANDSTONE, SHALE, CLAYSTONE, CONGLOMERATE, SILTSTONE, COAL

Igneous

GRANITIC ROCK, IGNEOUS DYKE, BASALTIC ROCK

Note: Additional rock symbols may be allocated for a particular project.

NATURAL FRACTURES (Coding)

Fracture Type

JT	Joint
BP	Bedding Plane
Cb	Cross Bed
SS	Sheared Surface
SM	Seam
CS	Crushed Seam
FZ	Fragmented Zone
SZ	Shear Zone
VN	Vein

Orientation

For vertical non-oriented core ... “Dip” angle (eg. 5°) measured relative to horizontal
For inclined non-oriented core ... “Angle” measured relative to core axis.
For inclined oriented core ... “Dip” angle and “Dip Direction” angle (eg. 45°/225° mag.)

VT	Vertical
HZ or 0°	Horizontal
d	degrees

Infilling or Coating

CN	Clean
X	Carbonaceous
CLAY	Clay
KT	Chlorite
CA	Calcite
FE	Iron Oxide
MI	Micaceous
Mn	Manganese
Py	Pyrite
QZ	Quartz
VE	Veneer

Shape

PLN	Planar
CU	Curved
UN	Undulating
ST	Stepped
IR	Irregular

Roughness

POL	Polished
SLK	Slickensided
SO	Smooth
RF	Rough
VR	Very Rough

Others

DIS	Discontinuous
OP	Open
CL	Closed
TI	Tight

Ref: DS6.5.1 Issue 1.7 Date: 20/09/2010

CORE LOG SHEET NOTES

GHD
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www.ghd.com/global/services/geotechnical/

The intention of Core Log Sheets is to present factual information measured from the core or as recorded in the field. Some interpretative information is inevitable in the location of core loss, description of weathering and identification of drilling induced fractures. This should be noted in the use of Core Log Sheets and remembered in their utilisation.

DRILLING AND CASING

The types of drilling used to advance the drill hole are recorded for relevant intervals. The types of drilling may include: NMLC coring, NQTT (NQ triple tube wire line), HW, HX, NW and NX casing, wash boring (tri-cone roller bit, TC drag bit, TC blade bit), or auger drilling (V-bit, TC drag bit).

The relevant progress is shown by abbreviated dates in the column.

WATER

Water lost or water made during drilling is recorded and subsequent readings of water levels in the borehole or piezometers are recorded here with dates of observation.

DRILL DEPTH AND CORE LOSS

Drilling intervals are shown by depth increments and horizontal marker lines. Core loss is measured as a percentage of the drill run. If the location of the core loss is known or strongly suspected, it is shown in a region of the column bounded by dashed horizontal lines. If unknown, core loss is assigned to the bottom of a coring run.

SAMPLES AND FIELD TESTS

The location of samples taken for testing or the location of field tests are indicated by the appropriate symbol from the GLOSSARY OF SYMBOLS Standard Sheet (or as applicable for the project) and are shown at the relevant location or over the relevant depth interval.

DEPTH (RL)

Changes in rock types or the locations of piezometer tips, samples, test intervals or other depths are shown as appropriate in terms of depth from the hole collar or in terms of RL.

For inclined holes the depths shown on the log refer to the drilled length along the borehole. The RL, where used, is the only transformed reference to true vertical depth.

STRATA

Rock types are presented graphically using the symbols shown on the GLOSSARY OF SYMBOLS Standard Sheet or as assigned for the project.

DESCRIPTION

The rock type is described in accordance with the ROCK DESCRIPTION Standard Sheet.

WEATHERING

Weathering is described, by code letters, in accordance with the ROCK DESCRIPTION Standard Sheet. A weathering term or range of terms is usually assigned to various strata.

It is noted, however, that the assignment of a term of weathering is subjective and is normally used for identification and does not imply engineering behaviour (such behaviour being controlled principally by rock substances strength and defect frequency - collectively, rock mass strength). Consequently, boundaries are often not shown and weathering may even not be reported where potentially misleading.

ESTIMATED STRENGTH

The strength of the rock substance is estimated by a combination of Point Load testing and tactile appraisal in accordance with the ROCK DESCRIPTION Standard Sheet. The estimated strength is presented in a histogram form. Both axial and diametric point load test results can be presented using the symbols on the GLOSSARY OF SYMBOLS Standard Sheet and the variation between axial and diametric values is indicative of anisotropy or fissility of the rock unit.

NATURAL FRACTURES

The identification of natural fractures requires an endeavour to exclude drilling induced breaks in the core and, as such, can be somewhat subjective. Natural fractures exist prior to coring the rock, whereas artificial fractures occur either during coring, during placing core in the core boxes, or during examination or transportation, or core after being boxed.

The log of Natural Fractures is presented as a combination of Fracture Spacing, Visual and Description columns. Coding is presented on the GLOSSARY OF SYMBOLS Standard Sheet.

ROCK QUALITY DESIGNATION (RQD) INDEX OPTION

The Core Log Sheet has an optional field column to record the RQD index. For certain projects, such as tunnelling or underground mining investigations, rock mass ratings or classifications can be required as part of the design process. The Rock Quality Designation (RQD) Index forms a component of these rock mass ratings and provides a quantitative estimate of rock mass quality from rock core logs. The core must be a minimum of 54.7mm diameter (although NMLC-sized core is probably OK) for derivation of an RQD index.

The RQD index is expressed as a percentage of intact rock core (excludes extremely weathered rock/residual soil) greater than 100 mm in length over the total selected core length. The total selected core length should be based on identifiable engineering geological domain characteristics. Should this not be practicable, RQD can be measured on a per run basis.

Ref: DS6.2.1 Issue 1.6 Date: 13/03/2012

LABORATORY TESTING

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Ref: DS5.5.2 Issue 1.7 Date: 13/03/2012

GENERAL

Samples extracted during the fieldwork stage of a site investigation may be “disturbed” or “undisturbed” (as generally indicated on the trial hole logs) depending upon the nature and purpose of the sample as well as the method of extraction, transportation, extrusion and testing. This aspect should be taken into account when assessing test results, which must of necessity, reflect the effects of such disturbance.

All soil properties (as measured by laboratory testing) exhibit inherent variability and thus a certain statistical number of tests is required in order to predict an average property with any degree of confidence. The site variability of soil strata, future changes in moisture and other conditions and the discrete sampling positions must also be considered when assessing the representative nature of the laboratory programme.

Certain laboratory test results provide interpreted soil properties as derived by conventional mathematical procedures. The applicability of such properties to engineering design must be assessed with due regard to the site, sample condition, procedure and project in hand.

TESTING

Laboratory testing is normally carried out in accordance with Australian Standard AS 1289 as amended, or RMS Standards when specified. The routine Australian Standard tests are as follows:-

Moisture Content	AS1289 2.1.1	
Liquid Limit	AS1289 3.1.1)	
Plastic Limit	AS1289 3.2.1)	collectively known as Atterberg Limits
Plasticity Index	AS1289 3.3.1)	
Linear Shrinkage	AS1289 3.4.1	
Particle Density	AS1289 3.5.1	
Particle Size Distribution	AS1289 3.6.1, 3.6.2 and 3.6.3	
Emerson Class Number	AS1289 3.8.1)	
Percent Dispersion	AS1289 3.8.2)	collectively, Dispersive Classification
Pinhole Dispersion Classification	AS1289 3.8.3)	
Hole Erosion (HE)	GHD Method	
No Erosion Filter (NEF)	GHD Method	
Organic Matter	AS1289 4.1.1	
Sulphate Content	AS1289 4.2.1	
pH Value	AS1289 4.3.1	
Resistivity	AS1289 4.4.1	
Standard Compaction	AS1289 5.1.1	
Modified Compaction	AS1289 5.2.1	
Dry Density Ratio	AS1289 5.4.1	
Minimum Density	AS1289 5.5.1	
Density Index	AS1289 5.6.1	
California Bearing Ratio	AS1289 6.1.1 and 6.1.2	
Shear Box	AS1289 6.2.2	
Undrained Triaxial Shear	AS1289 6.4.1 and 6.4.2	
One Dimensional Consolidation	AS1289 6.6.1	
Permeability Testing	AS1289 6.7.1, 6.7.2 and 6.7.3	

Where tests are used which are not covered by appropriate standard procedures, details are given in the report.

LABORATORY

Our laboratory is NATA accredited to AS ISO / IEC17025 for the listed tests.

The oedometer, triaxial and shear box equipment are fully automated for continuous operation using computer controlled data acquisition, processing and plotting systems.

Appendix B – Test Location Plan

0 20 40 60 80 100
Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

LEGEND
- Investigation Area (Approximate)
- Borehole (Geotechnical and Contamination)
- Monitoring Well (Contamination)

Transport for NSW
City to Southwest Sydney Metro
Geotechnical and Contamination Assessment

Investigation Locations and Soil Exceedances

Job Number	21-25491-53
Revision	A
Date	09 Nov 2017

Figure B1

G:\21\25491\GIS\Maps\Deliverables\2125491_Z054_Contam_Portion5_InvestigationLocations.mxd

Data Source: Geoscience Australia: 250k Data - Jan 2011, Imagery - NSW Land and Property Information 2015. Created by: tnham

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Appendix C – Borehole Logs

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH090
FILE / JOB NO : 21-25491
SHEET : 1 OF 5

POSITION : E: 330704.8, N: 6246203.9 (MGA94 / 56) SURFACE RL : 3.57 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 4/10/17 DATE COMPLETED : 4/10/17 DATE LOGGED : 4/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING							MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
					0.0			CONCRETE			
								0.15m			
				0.20m D 0.40m 0.50m				SAND, brown, fine to medium grained sand, with clay, trace of fine sub-angular to angular gravel (predominantly sandstone, bricks, concrete). (fill)	SM		FILL 0.20m -0.40m, DUP contamination sample, PID<1ppm
								0.50m			
				SPT 5, 2, 3 N=5				CLAY, brown, mottled red and orange with silt, trace of fine grained sub-angular to angular gravel (rock fragments).	SM <wp		0.50m SPT Recovery: 0.45 m
				0.95m							
					1.0			1.00m			
								SAND, brown, fine to medium grained sand, trace silt, trace fine to medium grained sub-angular to angular gravel (predominantly sandstone).			
				1.30m D							1.30m -1.30m, contamination sample, PID?
				1.50m SPT 3, 7, 5 N=12					M		1.50m contamination sample, PID<1ppm; SPT Recovery: 0.45 m
				1.95m				From 1.8m - 1.95m, boulder.			
					2.0						
								2.30m			
				2.50m D				CLAY, grey, mottled orange, high plasticity clay, trace silt. (residual)			RESIDUAL 2.50m contamination sample, PID<1ppm
				2.75m							2.75m PP=160-170 kPa
				3.00m SPT 2, 8, 6 N=14	3.0						3.00m contamination sample, PID<1ppm; SPT Recovery: 0.45 m
				3.45m							3.45m PP=150-200 kPa
							CH		VM (>PL)	St	
					4.0						4.00m contamination sample, PID<1ppm
			▽ during drilling	4.50m SPT 4, 7, 9 N=16							4.50m SPT Recovery: 0.45 m
				4.95m							4.95m PP=200 kPa
					5.0						

125mm SFA
HQ Casing

See Standard Sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH090
FILE / JOB NO : 21-25491
SHEET : 2 OF 5

POSITION : E: 330704.8, N: 6246203.9 (MGA94 / 56) SURFACE RL : 3.57 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 4/10/17 DATE COMPLETED : 4/10/17 DATE LOGGED : 4/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure,minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY/ DENSITY INDEX	COMMENTS / OBSERVATIONS
125mm SFA HQ Casing				6.00m SPT 12, 29, 42 N=71 6.45m 6.85m	5.0		CH	CLAY, grey, mottled orange, high plasticity clay, trace silt. (residual) *(continued)*	VM (>PL)	St	RESIDUAL
					6.0			6.00m SILTSTONE, grey mottled dark grey; extremely weathered, very low strength			6.00m SPT Recovery: 0.45 m 6.45m >400 kPa
					6.85m			6.85m Continued as Cored Drill Hole			
					7.0						
					8.0						
					9.0						
					10.0						

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH090
FILE / JOB NO : 21-25491
SHEET : 3 OF 5

POSITION : E: 330704.8, N: 6246203.9 (MGA94 / 56) SURFACE RL : 3.57 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 4/10/17 DATE COMPLETED : 4/10/17 DATE LOGGED : 4/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS) RUN %) / DRIL. DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
				5.0							
				5.5							
				6.0							
				6.5							
			6.85m			6.85m START CORING AT 6.85m					
NMLC	50% WL	0% LOSS		7.0		SILTSTONE, grey mottled dark grey	HW				7.05-7.20, fractured/fragmented
						From 7.2 and 7.36m, iron stained.	HW / MW				
		7.40	7.40m	7.5							7.60, BPx2, 0°, FE, PLN, SO, OP 7.65, JT, 5°, FE, PLN, TI 7.68, BP, 0°, FE, PLN, SO, OP
		9% LOSS					MW / SW				7.77-7.82, JTx3, 10°, FE, PLN, SO, OP
			Is(50) MPa a=0.08	8.0							
						8.16m					8.15, WSM, FE, CLAY and GRAVEL, 170mm
						CORE LOSS 0.16m (8.16-8.32)					
						8.32m					
						INTERLAMINATED SILTSTONE SANDSTONE (60:40), siltstone is dark grey; sandstone is fine grained, distinctly laminated.	SW / Fr				8.45-8.47, BPx3, 0°, PLN, SO, OP, fragmented 8.51, BP, 0°, GRAVEL, PLN, SO, 3 mm
							Fr				8.71, BP, 0°, FE, PLN, SO, OP 8.75, JT, 50°, FE, PLN, RF, TI
			Is(50) MPa d=0.33 Is(50) MPa a=0.86	8.5							
				9.0							
		9.30	9.30m								9.16-9.22, JTx2, 50°, PLN, RF, OP, cross-jointed
		0% LOSS	UCS								
			9.46m	9.5							9.47, WSM, 5°, CLAY, PLN, 60 mm
			Is(50) MPa d=0.49 Is(50) MPa a=1.02								9.62, JT, 20°, UN, SO, OP 9.71, JT, 20°, UN, SO, OP 9.83, JT, 30°, PLN, SO, OP
				10.0		From 9.9m, distinctly laminated at 10-15°.					9.88-9.96, BP or DB, 0-5°, PLN, SO, OP, fractured, 5mm spacing

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH090
FILE / JOB NO : 21-25491
SHEET : 4 OF 5

POSITION : E: 330704.8, N: 6246203.9 (MGA94 / 56) SURFACE RL : 3.57 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 4/10/17 DATE COMPLETED : 4/10/17 DATE LOGGED : 4/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING | MATERIAL | NATURAL FRACTURES

PROGRESS: DRILLING & CASING; WATER; (CORE LOSS RUN %); DRILL DEPTH
SAMPLES & FIELD TESTS
DEPTH/RL (m)
GRAPHIC LOG
DESCRIPTION — ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness,alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin)
WEATHERING
ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)
SPACING (mm)
VISUAL
ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other

DEPTH/RL (m)	DRILL DEPTH	(CORE LOSS RUN %)	SAMPLES & FIELD TESTS	DESCRIPTION	WEATHERING	ADDITIONAL DATA
10.0		0% LOSS		INTERLAMINATED SILTSTONE SANDSTONE (60:40), siltstone is dark grey; sandstone is fine grained, distinctly laminated. *(continued)*	Fr	
						10.15-10.26, JT, 70°, PLN, SO, OP, cross-jointed at 0°
						10.36, JT, 0°, PLN, SO, OP
10.5			Is(50) MPa d=0.47			10.50, JTx2, 0°, PLN, SO, OP
			d=0.47 Is(50) MPa a=1.61			10.68, JT, 5°, PLN, SO, OP
						10.93, JT, 5-20°, ST, RF, OP
11.0	11.10		11.09m Is(50) MPa d=0.5			
		0% LOSS	Is(50) MPa a=0.9			
						11.43, JT, 20°, CN, PLN, SO, OP
11.5						11.63, JT, 20°, CN, PLN, SO, OP
						11.94, JT, 50°, CLAY VN, PLN, SO, OP
12.0			Is(50) MPa 12.13m a=1.3			11.99, JT, 30°, CN, PLN, SO, OP
			UCS Is(50) MPa d=1.32			
			12.43m			
12.5						
13.0						
						13.39, JTx2, 30°/25°, GRAVEL, PLN, RF, 5 mm
13.5						13.51, JT, 40°, CN, PLN, SO, OP
	13.85		13.85m			
		0% LOSS				
14.0			Is(50) MPa a=1.98			14.02, JT, 50°, CN, PLN, SO, OP
			Is(50) MPa 14.08m a=1.46			14.17, JT, 50°, CN, PLN, SO, OP
			UCS			
14.5			14.56m			14.56, JT, 40°, PLN, SO, CL
						14.66, JT, 70-85°, CN, IR, RF, OP
						14.83, JT, 40°, PLN, SO, TI
15.0						

NMLC

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH090
FILE / JOB NO : 21-25491
SHEET : 5 OF 5

POSITION : E: 330704.8, N: 6246203.9 (MGA94 / 56) SURFACE RL : 3.57 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 4/10/17 DATE COMPLETED : 4/10/17 DATE LOGGED : 4/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING				MATERIAL				NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin)	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial ○ - Diametral EL .003 / VL .01 / L .03 / M .1 / H .3 / VH 1 / EH 10	SPACING (mm) 20 / 40 / 100 / 300 / 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		0% LOSS 15.33		15.0		INTERLAMINATED SILTSTONE SANDSTONE (60:40), siltstone is dark grey; sandstone is fine grained, distinctly laminated. *(continued)*	Fr				15.10, JT, 50°, CN, PLN, SO, OP
						15.33m BOREHOLE SRT BH090 TERMINATED AT 15.33 m Target depth					
				15.5							
				16.0							
				16.5							
				17.0							
				17.5							
				18.0							
				18.5							
				19.0							
				19.5							
				20.0							

See Standard Sheets for details of abbreviations & basis of descriptions

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TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Within industrial unit Sydney Steel Road CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH090 1/1	

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH091
FILE / JOB NO : 21-25491
SHEET : 1 OF 5

POSITION : E: 330782.3, N: 6246272.8 (MGA94 / 56) SURFACE RL : 3.72 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 9/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
					0.0			CONCRETE			
								0.13m			
				0.20m D 0.35m				SAND, brown, fine to medium grained sand, trace fine grained, sub-angular to sub-rounded gravel, trace silt (fill)	M	-	FILL 0.20m -03.0m, contamination sample, PID<1ppm
				D 0.45m 0.50m				0.30m Sandy CLAY, dark brown/black, low plasticity clay, with fine to medium grained, sub-angular to angular gravel (predominantly igneous rock fragments), trace silt			0.35m -0.45m, contamination sample, PID<1ppm
				SPT 2, 3, 5 N=8							0.50m -0.95, contamination sample, PID<1ppm; SPT Recovery: 0.45 m
				0.80m					VM (>PL)	-	
				0.95m	1.0						
				1.10m D 1.20m							1.10m -1.20m, contamination sample, PID<1ppm
								1.30m CLAY, brown, high plasticity clay, trace silt (residual)			RESIDUAL
				1.50m SPT 3, 3, 6 N=9							1.50m -1.95m, contamination sample, PID<1ppm 1.5-1.7m, PP=150-200 kPa; SPT Recovery: 0.45 m
				1.95m				From 1.7m, pale grey, mottled red.			1.70m -1.95m, PP=200-300 kPa
					2.0				VM (>PL)		
				2.30m D					M		
				2.50m						St	
				3.00m SPT 2, 6, 7 N=13	3.0		CH				3.00m -3.45m, contamination sample, PID<1ppm 3.0-3.45m, PP=; SPT Recovery: 0.45 m
				3.45m							
					4.0				SM (<PL)		
				4.50m SPT 4, 6, 9 N=15				From 4.5m, trace indurated gravel.		VSt	4.50m -4.95m, contamination sample, PID<1ppm 4.5-4.95m, PP=300-400 kPa; SPT Recovery: 0.45 m
				4.95m	5.0						

125mm SFA
HQ Casing

AGS 3_1 RTA 1_1 LIB 06.1 GHD 2.02.GLB Log GHD NON-CORE DRILL HOLE 2125491_SYDM_MARRICKVILLE.GPJ 08/Nov/2017 18:42 10.0.000

See Standard Sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH091
FILE / JOB NO : 21-25491
SHEET : 2 OF 5

POSITION : E: 330782.3, N: 6246272.8 (MGA94 / 56) SURFACE RL : 3.72 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 9/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
125mm SFA HQ Casing			6.7m, during drilling	6.00m SPT 6, 13, 20 N=33	5.0			CLAY, brown, high plasticity clay, trace silt (residual) *(continued)*			RESIDUAL
				6.45m	6.0		CH	From 6.0m, rock fabric evident.	SM (<PL)	VSt	6.00m -6.45m, PID<1ppm; SPT Recovery: 0.45 m
				7.50m SPT 13, 35, 20/50mm N=R	7.0			7.00m SILTSTONE, dark grey, extremely weathered, very low strength			7.50m SPT Recovery: 0.45 m
				7.85m							
				8.10m	8.0			8.10m Continued as Cored Drill Hole			
					9.0						
					10.0						

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH091
FILE / JOB NO : 21-25491
SHEET : 3 OF 5

POSITION : E: 330782.3, N: 6246272.8 (MGA94 / 56) SURFACE RL : 3.72 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 9/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING				MATERIAL				NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRIL. DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness,alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
				5.0							
				5.5							
				6.0							
				6.5							
				7.0							
				7.5							
				8.0							
			8.10m	8.10m		START CORING AT 8.10m					
NMLC		9% LOSS				CORE LOSS 0.20m (8.10-8.30)					
				8.30m		INTERLAMINATED SILTSTONE / SANDSTONE (60:40), siltstone is dark grey, distinctly laminated at 0-5°; sandstone is with pale grey, fine grained	SW				8.38, BP, 0°, FE, PLN, SO, OP
				8.5							
			Is(50) MPa d=0.02 Is(50) MPa a=0.54	9.0			Fr				8.75, SM, 0°, CLAY 5mm thick, PLN
				9.5							9.58-9.61, WSM, 0°, CLAY/VLS, PLN, 30 mm
				10.0							9.97, JT, 50°, CN, PLN, SO, OP

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH091
FILE / JOB NO : 21-25491
SHEET : 4 OF 5

POSITION : E: 330782.3, N: 6246272.8 (MGA94 / 56) SURFACE RL : 3.72 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 9/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness,alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)	SPACING (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		9% LOSS		10.0		INTERLAMINATED SILTSTONE / SANDSTONE (60:40), siltstone is dark grey, distinctly laminated at 0-5°; sandstone is with pale grey, fine grained *(continued)*	Fr				10.05-10.09, FZ, 0°, PLN, fractured/fragmented
		10.40	10.40m								
		0% LOSS	Is(50) MPa d=0.18 Is(50) MPa a=0.85	10.5							
				11.0							10.90, SM, 0°, CLAY 10mm thick, PLN
											11.02-11.20, JT'sx5, 0-20°, CN, IR, OP
				11.5							11.28-11.50, JT'sx5, 30-40°, CN, PLN, OP
											11.56, JT, 10°, CN, PLN, OP
											11.73-11.80, FZ, 20-30°, PLM
		11.90	11.90m								
		0% LOSS		12.0		From 11.90m, becoming SILTSTONE / SANDSTONE (80:20).					12.03, JT, 90°, CN, IR, SO, OP
											12.29, JT, 20°, CN, IR, SO, OP
			Is(50) MPa d=0.19 Is(50) MPa a=0.45	12.5							
				13.0							
			Is(50) MPa a=0.87 Is(50) MPa d=0.3								
				13.5							13.30-13.40, JT'sx3, 30°, CN, PLN, SO, OP
											13.59, BP, 0°, CN, PLN, SO, CL
				14.0							13.90, BP, 0°, CN, PLN, SO, CL
			Is(50) MPa a=0.91 Is(50) MPa d=0.39								14.15, BP, 0°, CN, PLN, SO, CL
				14.5							
		14.80	14.80m								14.80, JT, 45°, CN, PLN, SO, CL
		0% LOSS		15.0							

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Within industrial unit Sydney Steel Road

HOLE NO : SRT BH091
FILE / JOB NO : 21-25491
SHEET : 5 OF 5

POSITION : E: 330782.3, N: 6246272.8 (MGA94 / 56) SURFACE RL : 3.72 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 9/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial ○ - Diametral (EL, VL, L, M, H, VH, EH)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		0% LOSS	Is(50) MPa a=0.89 Is(50) MPa d=0.05	15.0		INTERLAMINATED SILTSTONE / SANDSTONE (60:40), siltstone is dark grey, distinctly laminated at 0-5°; sandstone is with pale grey, fine grained *(continued)*	Fr				
				15.5							15.58, BP, 0°, CN, PLN, SO, CL
		16.00		16.0							
											16.28, BP, 0°, FE CN, PLN, SO, CL
			Is(50) MPa a=0.68 Is(50) MPa d=0.73	16.5							
				17.0							17.06, JT, 40°, CU, SO, OP
				17.5		17.90m					
						BOREHOLE SRT BH091 TERMINATED AT 17.90 m Target depth					
				18.0							
				18.5							
				19.0							
				19.5							
				20.0							

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TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Within industrial unit Sydney Steel Road CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH091 1/1	

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH092
FILE / JOB NO : 21-25491
SHEET : 1 OF 4

POSITION : E: 330835.6, N: 6246217.2 (MGA94 / 56) SURFACE RL : 3.82 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
					0.0			CONCRETE			
								0.16m			
								Sandy CLAY, brown with red and orange inclusions, low plasticity clay, fine to medium grained sand, trace fine to medium grained sub-angular to angular gravel. (fill)			FILL 0.20m -0.40m, contamination sample, PID<1ppm
								0.40m			
				0.50m				CLAY, pale grey mottled red and orange inclusions, high plasticity clay, trace silt (residual)			RESIDUAL
				SPT 2, 3, 4 N=7							0.50m -0.95m, contamination sample, PID <1ppm PP=100-200 kPa; SPT Recovery: 0.45 m
				0.95m	1.0					St	
				1.50m				From 1.5m, trace indurated gravel, rock fabric evident.			1.50m -1.95m, contamination sample, PID <1ppm PP=350-400 kPa; SPT Recovery: 0.45 m
				SPT 11, 13, 16 N=29							
				1.95m	2.0						
125mm SFA HQ Casing			2.41 on 9/10						SM (<PL)		
				3.00m	3.0						3.00m -3.45m, contamination sample, PID <1ppm PP>400 kPa; SPT Recovery: 0.45 m
				SPT 10, 15, 22 N=37						VSt	
				3.45m							
				4.50m	4.0			From 4.5m, red mottled orange.			4.50m -4.95m, contamination sample, PID <1ppm PP>400 kPa; SPT Recovery: 0.45 m
				SPT 10, 13, 16 N=29							
				4.95m	5.0						

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH092
FILE / JOB NO : 21-25491
SHEET : 2 OF 4

POSITION : E: 330835.6, N: 6246217.2 (MGA94 / 56) SURFACE RL : 3.82 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
125mm SFA HQ Casing					5.0			CLAY, pale grey mottled red and orange inclusions, high plasticity clay, trace silt (residual) *(continued)*	SM (<PL)	VSt	RESIDUAL
				6.00m SPT 10, 25, 26 N=51	6.0						6.00m -6.45m, contamination sample, PID <1ppm PP>400 kPa; SPT Recovery: 0.45 m
				6.45m				6.20m SILTSTONE, dark grey; extremely weathered, very low strength			
				6.75m				6.75m Continued as Cored Drill Hole			
					7.0						
					8.0						
					9.0						
					10.0						

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH092
FILE / JOB NO : 21-25491
SHEET : 3 OF 4

POSITION : E: 330835.6, N: 6246217.2 (MGA94 / 56) SURFACE RL : 3.82 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
				5.0							
				5.5							
				6.0							
				6.5							
			6.75m			6.75m START CORING AT 6.75m					
NMLC		0% LOSS	Is(50) MPa d=0.27 Is(50) MPa a=0.46	7.0		SILTSTONE, dark grey, indistinctly bedded.	Fr				
		7.35	7.35m								
		0% LOSS	UCS	7.5							
			7.80m								
			Is(50) MPa d=0.3 a=0.51 Is(50) MPa d=0.08	8.0							
				8.5		From 8.5m, becoming interlaminated.					8.52, BP, 0°, CN, SO, CL
						8.80m					
				9.0		INTERLAMINATED SILTSTONE / SANDSTONE (70:30), siltstone is pale grey; sandstone is fine grained, distinctly laminated at 0-5°.	Fr				
			Is(50) MPa 9.55m d=1.76	9.5							
			UCS Is(50) MPa d=0.97								
			9.95m								9.91, WSM, 0°, HW/MW, 50 mm
				10.0							

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH092
FILE / JOB NO : 21-25491
SHEET : 4 OF 4

POSITION : E: 330835.6, N: 6246217.2 (MGA94 / 56) SURFACE RL : 3.82 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 6/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL >10, VH 3-10, H 1-3, M 0.3-1, L 0.1-0.3, VL 0.03-0.1, EL <0.03)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		0% LOSS 10.25 0% LOSS	10.25m	10.0		INTERLAMINATED SILTSTONE / SANDSTONE (70:30), siltstone is pale grey; sandstone is fine grained, distinctly laminated at 0-5°. *(continued)*	Fr				10.40, BP, 0°, HW, PLN, SO, OP
			Is(50) MPa a=3.09	10.5							
				11.0							
				11.5							
			12.52m Is(50) MPa a=0.14 UCS Is(50) MPa a=1.87	12.0							
			12.59m	12.5							
		13.15		13.0		13.15m BOREHOLE SRT BH092 TERMINATED AT 13.15 m Target depth					
				13.5							
				14.0							
				14.5							
				15.0							

See Standard Sheets for details of abbreviations & basis of descriptions

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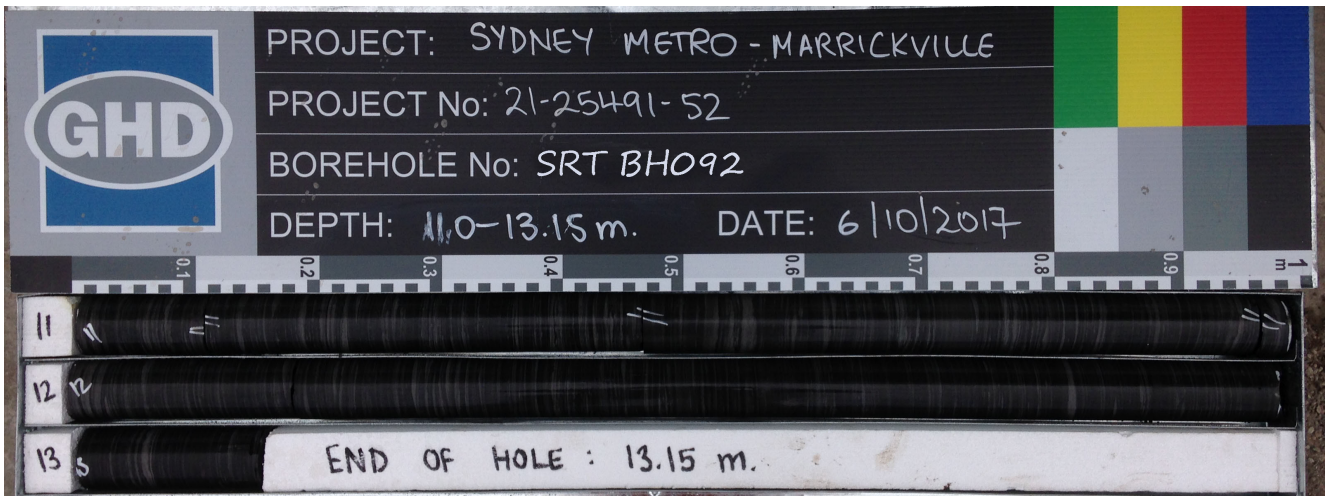
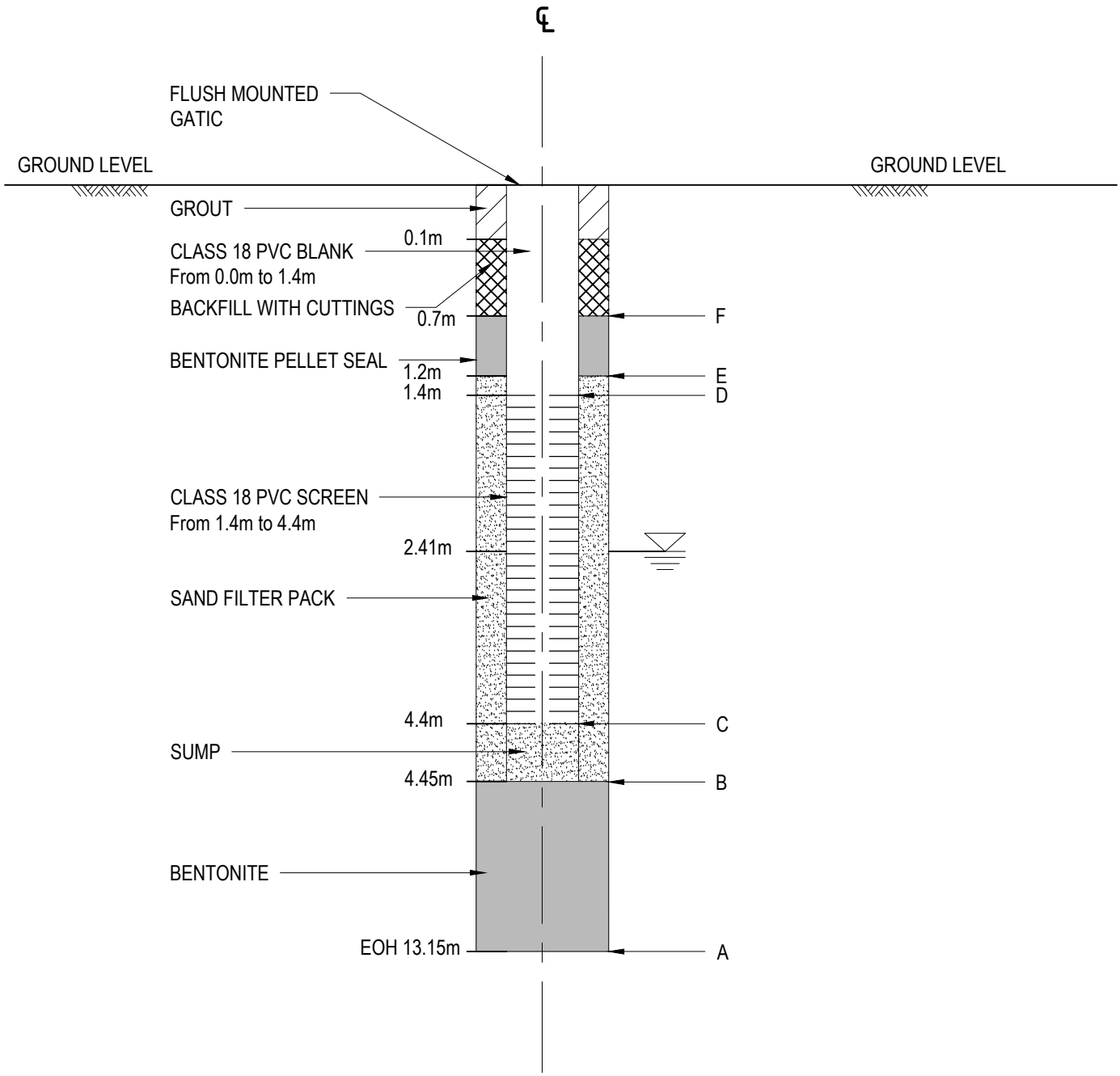


TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Sydney Steel Road CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH092 1/1	



A	BOTTOM OF HOLE
B	BASE OF PVC & SAND PACK
C	BASE OF SLOTTED PVC
D	TOP OF SLOTTED PVC
E	BASE OF BENTONITE / TOP OF SAND FILTER PACK
F	TOP OF BENTONITE / BASE OF CONCRETE

NOTE: REFER TO LOG SRT BH092 FOR MATERIAL DESCRIPTIONS.

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GROUND WATER WELL INSTALLATION DETAIL
Borehole SRT BH092

Designed:	KH	Figure No:	SRT BH092
Drawn:	YL		
Checked:	Date: 9/11/17	Job No:	21-25491-52
File Name:	21-25491-SRT BH092	Scale:	NOT TO SCALE

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH093
FILE / JOB NO : 21-25491
SHEET : 1 OF 4

POSITION : E: 330760.8, N: 6246140.5 (MGA94 / 56) SURFACE RL : 3.76 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 5/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
					0.0			0.10m CONCRETE			
								Sandy CLAY, dark brown with red and orange inclusions, high plasticity clay, fine to medium grained sand, sub-angular to angular gravel (predominantly concrete and rock fragments). (fill)	VM (>PL)		FILL
				0.80m D 0.90m 1.00m SPT 1, 0, 1 N=1	1.0			1.10m			0.80m contamination sample, PID <1ppm 1.00m -0.45m, contamination sample, PID=5ppm +DUP2; SPT Recovery: 0.45 m
				1.45m				CLAY, grey brown, high plasticity clay, with silt. From 1.2m, strong hydrocarbon odour.	VM (>PL)		
				1.90m D 2.00m	2.0			1.70m CLAY, red mottled pale grey and orange, high plasticity clay, trace silt. (residual)			RESIDUAL 1.90m contamination sample, PID <1ppm
				2.50m SPT 3, 6, 11 N=17					SM (<PL)		2.50m -2.95m, contamination sample, PID <1ppm PP=350-400 kPa; SPT Recovery: 0.45 m
125mm SFA HQ Casing			Groundwater Not Encountered	2.95m	3.0		CH			VSt	
				3.50m D 3.60m				From 3.5m, pale grey mottled red.			3.50m contamination sample, PID <1ppm
				4.00m SPT 6, 9, 13 N=22	4.0			From 4.2m, indurated gravel, rock fabric evident.			4.00m -4.45m, contamination sample, PID <1ppm PP>400 kPa; SPT Recovery: 0.45 m
				4.45m	5.0						

See Standard Sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH093
FILE / JOB NO : 21-25491
SHEET : 2 OF 4

POSITION : E: 330760.8, N: 6246140.5 (MGA94 / 56) SURFACE RL : 3.76 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 5/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
125mm SFA HQ Casing					5.0			CLAY, red mottled pale grey and orange, high plasticity clay, trace silt. (residual) *(continued)*		VSt	RESIDUAL
				5.50m SPT 22, 29, 42 N=71 5.95m			CH				5.50m -5.95m, contamination sample, PP>400 kPa; SPT Recovery: 0.45 m
				6.50m	6.0			5.60m SILTSTONE, dark grey; extremely weathered, very low strength 6.50m			
								Continued as Cored Drill Hole			
					7.0						
					8.0						
					9.0						
					10.0						

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH093
FILE / JOB NO : 21-25491
SHEET : 3 OF 4

POSITION : E: 330760.8, N: 6246140.5 (MGA94 / 56) SURFACE RL : 3.76 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 5/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH (Is(50)MPa ● - Axial ○ - Diametral) EL .003 VL .01 L .03 M .1 H .3 VH 1 EH 10	SPACING (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
				5.0							
				5.5							
				6.0							
			6.50m	6.5		6.50m START CORING AT 6.50m					6.50: V-bit refusal
NMLC		52% LOSS				CORE LOSS 0.42m (6.50-6.92)					
						6.92m					
			Is(50) MPa d=0.11 Is(50) MPa a=0.24	7.0		SILTSTONE, dark grey, indistinctly laminated.	SW / Fr				6.98, SM, 0°, CLAY, 1mm thick, PLN
		7.30	7.30m								7.37, JT, 30°, CN, PLN, SO, OP
		0% LOSS		7.5			Fr				
						8.00m					
			Is(50) MPa d=0.09 Is(50) MPa a=0.69	8.0		INTERLAMINATED SANDSTONE / SILTSTONE (70:30), sandstone is pale grey, fine grained; siltstone is dark grey, indistinctly laminated					8.18, BP, 0°, CN, PLN, SO, OP
				8.5							8.62, BP'sx2, 0°, PLN, SO, OP
											8.80, JT, 40°, CN, PLN, RF, OP
				9.0		From 9.18-9.23m, tuffaceous claystone.					9.18, BP, 0°, CN, PLN, SO, OP
											9.32, BP, 0°, CN, PLN, SO, OP
				9.5							9.49, JT, 40°, CN, PLN, SO, OP
											9.56, BP, 5°, CN, PLN, SO, OP
			Is(50) MPa d=0.11 Is(50) MPa a=1.38								9.88-9.94, BP'sx2, 0°, CN, PLN, SO, OP
				10.0							

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH093
FILE / JOB NO : 21-25491
SHEET : 4 OF 4

POSITION : E: 330760.8, N: 6246140.5 (MGA94 / 56) SURFACE RL : 3.76 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 5/10/17 DATE COMPLETED : 6/10/17 DATE LOGGED : 6/10/17 LOGGED BY : K Holden CHECKED BY : ARF

DRILLING | MATERIAL | NATURAL FRACTURES

PROGRESS: DRILLING & CASING; WATER
(CORE LOSS RUN %); DRILL DEPTH
SAMPLES & FIELD TESTS
DEPTH/RL (m)
GRAPHIC LOG
DESCRIPTION
ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness,alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin)
WEATHERING
ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)
SPACING (mm)
VISUAL
ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other

DEPTH/RL (m)	DRILL DEPTH	(CORE LOSS RUN %)	SAMPLES & FIELD TESTS	DESCRIPTION	WEATHERING	ADDITIONAL DATA
10.0	10.10	0% LOSS	10.10m	INTERLAMINATED SANDSTONE / SILTSTONE (70:30), sandstone is pale grey, fine grained; siltstone is dark grey, indistinctly laminated *(continued)*	Fr	
						10.23, BP'sx2, 20°, CN, PLN, SO, OP
10.5						10.55, BP, 0-5°, CN, UN, SO, OP
						10.63, BP, 5°, CN, PLN, SO, OP
			Is(50) MPa a=1.79 Is(50) MPa d=0.76			
11.0						
						11.43, BP, 0°, CN, PLN, SO, OP
11.5						
			Is(50) MPa d=0.56 Is(50) MPa a=2.42			
12.0						
						12.73, BP, 0°, CN, PLN, SO, OP
12.5						
13.0	13.15		Is(50) MPa a=3.23 Is(50) MPa d=1.83	13.15m BOREHOLE SRT BH093 TERMINATED AT 13.15 m Target depth		
13.5						
14.0						
14.5						
15.0						

NMLC

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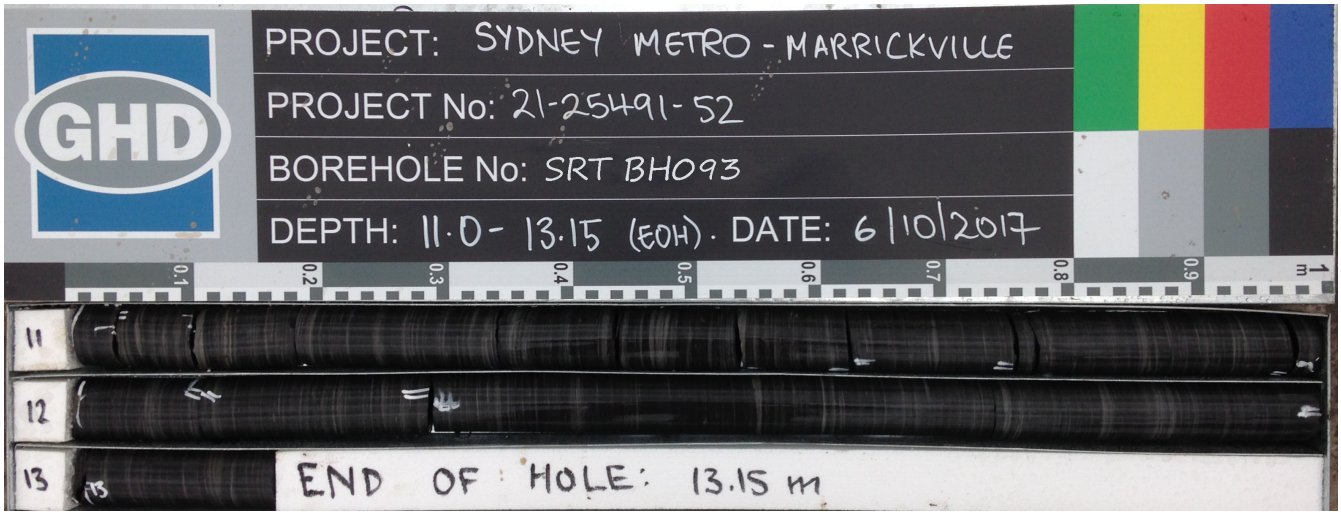

TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Sydney Steel Road CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH093_1/1	

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH094
FILE / JOB NO : 21-25491
SHEET : 1 OF 5

POSITION : E: 330908.8, N: 6246382.7 (MGA94 / 56) SURFACE RL : 4.06 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
					0.0			0.05m ASPHALT			
				0.20m D 0.50m				Gravelly SAND, black, fine to medium grained sand, angular to sub-angular gravel (fill)	D		FILL 0.40m contamination sample, PID=2
				SPT U75 0, 0,0 N=0				0.50m CLAY, grey, high plasticity clay, traces of sand and gravel, high plasticity (alluvium)			ALLUVIUM 0.50m SPT Recovery: 0.45 m 0.50m -0.80m, disturbed sample 0.60m contamination sample, PID=1 0.70m PP=50 kPa
				0.90m 0.95m 1.00m			CH		M	VS	
				D 1.30m	1.0			1.00m CLAY, pale grey mottled red, high plasticity clay (residual)			RESIDUAL 1.20m contamination sample, PID<1ppm PP=180 kPa
				1.50m SPT 3, 5, 6 N=11				1.5m, trace rootlets.			1.50m SPT Recovery: 0.45 m 1.60m contamination sample, PID<1ppm 1.70m PP=250 kPa
				1.95m	2.0					St	
				3.00m SPT 3, 4, 8 N=12	3.0		CH	3.0m, pale grey.			3.00m SPT Recovery: 0.45 m 3.10m contamination sample, PID<1ppm 3.30m PP>300 kPa
				3.45m							
				4.50m SPT 5, 18, 20 N=38	4.0						4.50m SPT Recovery: 0.45 m 4.60m PP>300 kPa
				4.95m				4.75-5.05m, trace indurated gravel.		VSt	4.80m contamination sample, PID<1ppm
125mm SFA HQ Casing					5.0						

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH094
FILE / JOB NO : 21-25491
SHEET : 2 OF 5

POSITION : E: 330908.8, N: 6246382.7 (MGA94 / 56) SURFACE RL : 4.06 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure,minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY/ DENSITY INDEX	COMMENTS / OBSERVATIONS
HQ Casing					5.0			CLAY, pale grey mottled red, high plasticity clay (residual) *(continued)*			RESIDUAL
				6.00m SPT 5, 8, 14 N=22	6.0			6.0m, pale grey mottled orange.			6.00m SPT Recovery: 0.45 m 6.10m contamination sample, PID<1ppm 6.20m PP>400 kPa
				6.45m							6.45m PP>400 kPa
					7.0						
125mm SFA				7.50m SPT 3, 5, 8 N=13			CH			VSt	7.50m SPT Recovery: 0.45 m 7.60m contamination sample, PID<1ppm 7.70m PP>300 kPa
				7.95m	8.0						
				9.00m SPT 3, 4, 6 N=10	9.0						9.00m SPT Recovery: 0.45 m
				9.45m							9.30m PP>250 kPa
					10.0						

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH094
FILE / JOB NO : 21-25491
SHEET : 3 OF 5

POSITION : E: 330908.8, N: 6246382.7 (MGA94 / 56) SURFACE RL : 4.06 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
125mm SFA					10.0			CLAY, pale grey mottled red, high plasticity clay (residual) *(continued)*			RESIDUAL
				10.50m SPT 5, 7, 15 N=22							10.50m SPT Recovery: 0.45 m
											10.70m PP>400 kPa
				10.95m	11.0		CH	10.9m, rock fabric evident.		VSt	
								11.80m SILTSTONE, dark grey; extremely weathered, very low strength			
				12.00m SPT 32/100mm N=R 12.10m	12.0			12.10m			12.00m SPT Recovery: 0.1 m
NMLC								Continued as Cored Drill Hole			
					13.0						
					14.0						
					15.0						

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH094
FILE / JOB NO : 21-25491
SHEET : 4 OF 5

POSITION : E: 330908.8, N: 6246382.7 (MGA94 / 56) SURFACE RL : 4.06 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) / DRIL. DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
				10.0							
				10.5							
				11.0							
				11.5							
				12.0		12.10m START CORING AT 12.10m					
NMLC		7% LOSS				12.20m CORE LOSS 0.10m (12.10-12.20)					12.10: PP>400 kPa
			Is(50) MPa d=0.18 Is(50) MPa a=1	12.5		INTERLAMINATED SILTSTONE SANDSTONE (70:30), siltstone is dark grey, distinctly laminated at 0-10°; sandstone is pale grey, fine grained	HW / Fr				12.21-12.26, BP'sx3, 0°, FE, PLN, SO, OP 12.30, BP, 0°, CLAY/VLS, PLN, 20 mm 12.40, BP, 0°, FE, PLN, SO, OP
				13.0							12.68-12.70, BP'sx2, 0°, PLN, SO, OP 12.77, JT, 30°, PLN, SO, OP 12.80-12.83, BP'sx2, 0°, PLN, SO, OP
				13.5							13.32, JT, 90°, PLN, SO, OP 13.35, BP, 0°, CN, PLN, SO, OP 13.62, BP, 0°, CN, PLN, SO, OP
				14.0							13.92, BP, 0°, CN, PLN, SO, OP
				14.5							14.56, BP, 0°, CN, PLN, SO, OP 14.70, JT, 40°, PLN, SO, OP 14.77, JT, CU, SO, OP
		14.90	14.90m								
		0% LOSS	Is(50) MPa a=1.1	15.0							

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Sydney Steel Road

HOLE NO : SRT BH094
FILE / JOB NO : 21-25491
SHEET : 5 OF 5

POSITION : E: 330908.8, N: 6246382.7 (MGA94 / 56) SURFACE RL : 4.06 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH (Is(50)MPa; ● - Axial, O - Diametral)	SPACING (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		0% LOSS	Is(50) MPa d=0.14	15.0		INTERLAMINATED SILTSTONE SANDSTONE (70:30), siltstone is dark grey, distinctly laminated at 0-10°; sandstone is pale grey, fine grained *(continued)*	Fr	EL .003 VL .01 L .03 M .1 H .3 VH 1 EH 10	20 40 100 300 1000		15.20, BP, 0°, PLN, SO, OP
				15.5							15.72, BP, 0°, CN, PLN, SO, OP
											15.88, JT, 60°, PLN, OP
				16.0		16.0m, becoming more SILTSTONE.					
			Is(50) MPa d=0.27 Is(50) MPa a=1.03								
				16.5							16.55, BP, 5°, HW, PLN, RF, 1 mm, OP
											16.68, BP, 5°, CN, PLN, RF, OP
											16.80, BP, 5°, HW CN, PLN, RF, 1 mm, OP
											16.88, BP, 5°, HW CN, PLN, RF, OP
				17.0							17.00, WSM, 0°, HW, PLN, RF, CL
											17.20, BP, 5°, CN, PLN, SO, OP
											17.28, BP, 5°, CN, PLN, SO, OP
			Is(50) MPa d=0.51 Is(50) MPa a=1.23	17.5							
											17.56, BP, 0°, CN, PLN, SO, OP
											17.64, JT, 90°, PLN, SO, CL
											17.68, BP, 0°, CN, PLN, SO, OP
		17.95	17.95m								
		0% LOSS		18.0							18.00-18.14, DB'sx3
			Is(50) MPa d=0.5 Is(50) MPa a=1.16	18.5							18.48, JT, 70°, CN, PLN, SO, CL
											18.67, BP, 0°, CN, PLN, RF, OP
			18.80m UCS								
			19.00m	19.0							
		19.50				19.50m					
				19.5		BOREHOLE SRT BH094 TERMINATED AT 19.50 m Target depth					
				20.0							

See Standard Sheets for details of abbreviations & basis of descriptions

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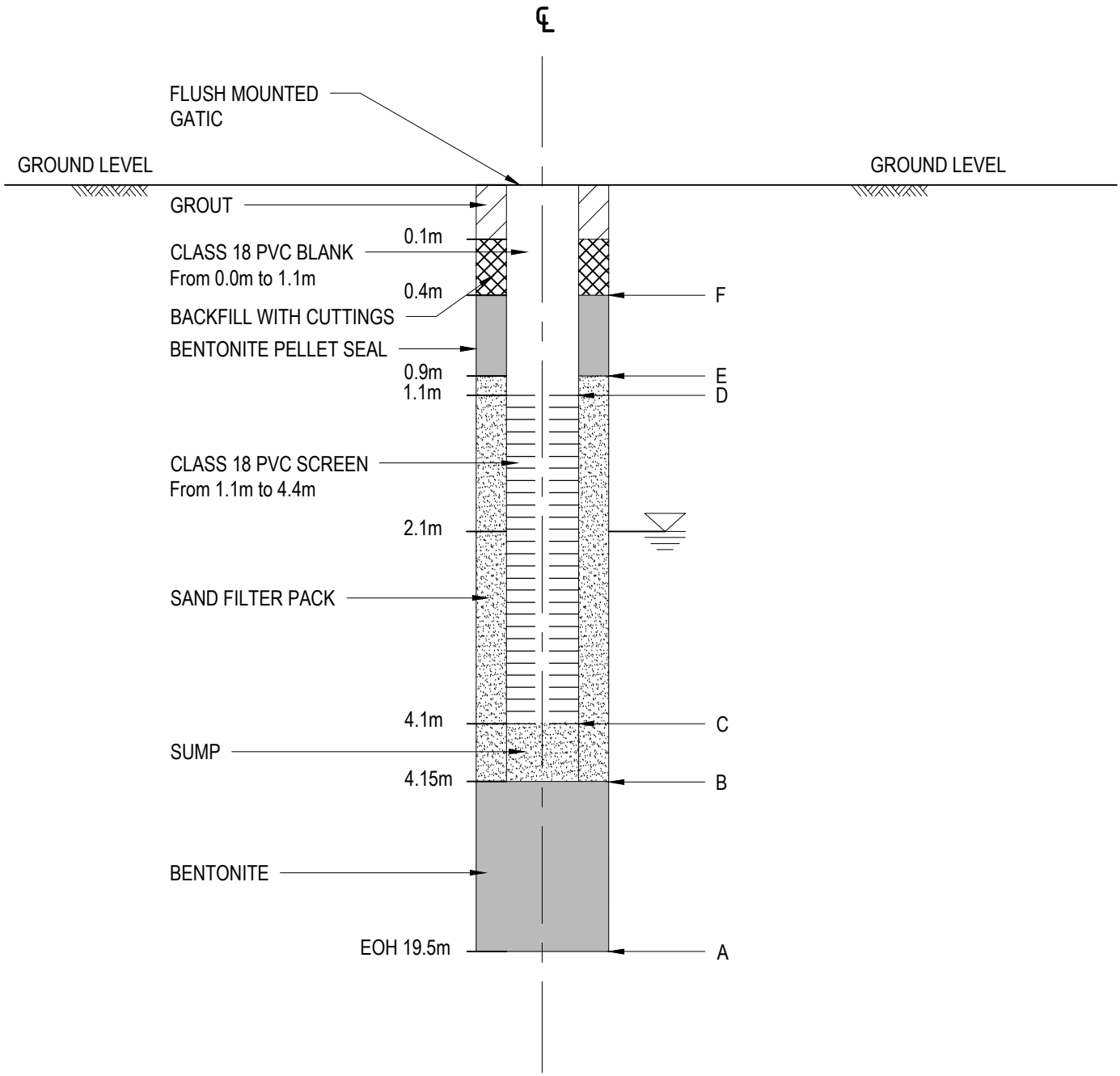
TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Sydney Steel Road CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH094 1/1	



A	BOTTOM OF HOLE
B	BASE OF PVC & SAND PACK
C	BASE OF SLOTTED PVC
D	TOP OF SLOTTED PVC
E	BASE OF BENTONITE / TOP OF SAND FILTER PACK
F	TOP OF BENTONITE / BASE OF CONCRETE

NOTE: REFER TO LOG SRT BH094 FOR MATERIAL DESCRIPTIONS.

GHD

GROUND WATER WELL INSTALLATION DETAIL
Borehole SRT BH094

Designed:	KH	Figure No:	SRT BH094
Drawn:	YL		
Checked:	Date: 9/11/17	Job No:	21-25491-52
File Name:	21-25491-SRT BH094	Scale:	NOT TO SCALE

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Garden Street

HOLE NO : SRT BH095
FILE / JOB NO : 21-25491
SHEET : 1 OF 6

POSITION : E: 330636.2, N: 6246066.1 (MGA94 / 56) SURFACE RL : 1.47 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 16/10/17 DATE COMPLETED : 16/10/17 DATE LOGGED : 16/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY/ DENSITY INDEX	COMMENTS / OBSERVATIONS
					0.0			0.05m ASPHALT			
				0.10m D 0.40m				Sandy GRAVEL, dark grey, fine to medium, sub-angular to angular gravel, fine to coarse grained sand, trace silt (predominantly igneous rock fragments) (fill)			FILL 0.10m -4.0m, contamination sample, PID 1.6ppm
				0.50m SPT + U75 2, 2, 2 N=4 0.80m 0.95m			CH	0.40m CLAY, dark grey mottled red and brown, high plasticity clay, trace silt (alluvium)	VM (>PL)	F	ALLUVIUM 0.50m -0.95, contamination sample, PID<1ppm; SPT Recovery: 0.45 m 0.80m PP=120 kPa
				1.10m D 1.30m 1.50m SPT 3, 3, 5 N=8 1.95m	1.0			1.00m CLAY, mottled grey and red, high plasticity clay, trace silt (residual) From 1.6m, grey mottled orange, trace silt.			RESIDUAL 1.10m -1.30m, contamination sample, PID<1ppm 1.50m -1.95m, PP=250 kPa; SPT Recovery: 0.45 m
				2.40m D 2.60m 3.00m SPT 4, 5, 10 N=15 3.45m	2.0						2.40m -2.60m, contamination sample, PID<1ppm
				3.90m D 4.10m 4.50m SPT 5, 10, 14 N=24 4.95m	3.0		CH	From 3.0m, trace indurated gravel. From 4.5m, pale grey.	VM (>PL)	St	3.00m -3.45m, contamination sample, PID<1ppm PP>400 kPa; SPT Recovery: 0.45 m 3.90m -4.10m, contamination sample, PID<1ppm 4.50m -4.95m, PP>400 kPa; SPT Recovery: 0.45 m 4.70m contamination sample, PID<1ppm
					4.0						
					5.0						

125mm SFA
HQ Casing

See Standard Sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Garden Street

HOLE NO : SRT BH095
FILE / JOB NO : 21-25491
SHEET : 2 OF 6

POSITION : E: 330636.2, N: 6246066.1 (MGA94 / 56) SURFACE RL : 1.47 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 16/10/17 DATE COMPLETED : 16/10/17 DATE LOGGED : 16/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
					5.0			CLAY, mottled grey and red, high plasticity clay, trace silt (residual) *(continued)*			RESIDUAL
				6.00m SPT 5, 10, 12 N=22	6.0						6.00m SPT Recovery: 0.45 m
				6.45m						St	6.20m -6.40m, PP>400 kPa
125mm SFA HQ Casing					7.0		CH		VM (>PL)		
				7.50m SPT 11, 19, 13 N=32							7.50m SPT Recovery: 0.45 m
				7.95m	8.0					VSt	
				9.00m SPT 20, 30/90mm N=R 9.24m	9.0			9.00m SILTSTONE, dark grey, extremely weathered, very low strength			9.00m SPT Recovery: 0.24 m
				9.30m				9.30m Continued as Cored Drill Hole			
					10.0						

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Garden Street

HOLE NO : SRT BH095
FILE / JOB NO : 21-25491
SHEET : 3 OF 6

POSITION : E: 330636.2, N: 6246066.1 (MGA94 / 56) SURFACE RL : 1.47 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 16/10/17 DATE COMPLETED : 16/10/17 DATE LOGGED : 16/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS) RUN % / DRIL. DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral: EL >10, VL 10-3, L 3-1, M 1-0.3, H 0.3-0.1, VH 0.1-0.03, EH <0.03	SPACING (mm): 20, 40, 100, 300, 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
				5.0							
				5.5							
				6.0							
				6.5							
				7.0							
				7.5							
				8.0							
				8.5							
				9.0							
			9.30m			9.30m START CORING AT 9.30m					
NMLC		19% LOSS		9.5		CORE LOSS 0.21m (9.30-9.51)					
						9.51m INTERLAMINATED SILTSTONE / SANDSTONE (70:30), siltstone is dark grey; sandstone is fine grained, distinctly laminated	SW				9.64, BP, 0°, CLAY, PLN, 5 mm 9.72, BP, 0°, HW, PLN, SO, 5 mm, CL 9.76, JT, 80°, CN, ST, CL 9.91, BP, 0°, CN, PLN, ST, CL
				10.0							

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Garden Street

HOLE NO : SRT BH095
FILE / JOB NO : 21-25491
SHEET : 4 OF 6

POSITION : E: 330636.2, N: 6246066.1 (MGA94 / 56) SURFACE RL : 1.47 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 16/10/17 DATE COMPLETED : 16/10/17 DATE LOGGED : 16/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING | MATERIAL | NATURAL FRACTURES

PROGRESS: DRILLING & CASING; WATER; (CORE LOSS RUN %); DRILL DEPTH

SAMPLES & FIELD TESTS | DEPTH/RL (m) | GRAPHIC LOG

DESCRIPTION
ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness,alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin)

WEATHERING | ESTIMATED STRENGTH Is(50)MPa ● - Axial ○ - Diametral (EL, VL, L, M, H, VH, EH)

SPACING (mm) | VISUAL | ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other

DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	DESCRIPTION	WEATHERING	ADDITIONAL DATA
19% LOSS		10.0	INTERLAMINATED SILTSTONE /SANDSTONE (70:30), siltstone is dark grey; sandstone is fine grained, distinctly laminated *(continued)*	SW	10.02, BP, 0°, CN, PLN, SO, OP
	Is(50) MPa a=0.09				10.23-10.26, BP'sx2, 0°, PLN, SO, OP
10.40	Is(50) MPa d=0.02	10.40m			10.33, JT, 40°, CN, PLN, SO, OP
3% LOSS	Is(50) MPa d=0.03 Is(50) MPa a=0.54	10.48m	CORE LOSS 0.08m (10.40-10.48)		
		10.5	INTERLAMINATED SILTSTONE /SANDSTONE, (as above)	Fr	10.50, SM, 0°, CLAY, PLN, 10 mm
					10.65, BP, 0°, PLN, SO, OP
					10.72, BP, 0°, CN, PLN, SO, OP
					10.86, BP, 0°, CN, PLN, SO, OP
		11.0	From 11.0m, becoming SILTSTONE/SANDSTONE (80:20).		
					11.16, BP, 0°, CN, PLN, SO, OP
					11.38, BP, 0°, PLN, SO, OP
		11.5			
					11.64, JT, 45°, PLN, TI
					11.77, BP, 0°, CN, PLN, SO, OP
					11.88, BP, 0°, PLN, 10 mm, fractured/fragmented
		12.0			
					12.28, BP, 0°, CN, PLN, SO, OP
		12.5			
					12.70, BP, 0°, CN, PLN, SO, CL
					12.78, BP, 0°, PLN, SO, CL
					12.86, BP, 0°, PLN, SO, CL
	Is(50) MPa d=0.02 Is(50) MPa a=1.12	13.0			
13.40	13.40m				
0% LOSS		13.5			
	Is(50) MPa a=1.51 Is(50) MPa d=0.82				13.68, BP, 0°, PLN, SO, CL
					13.93, BP, 0°, PLN, SO, OP
		14.0			
					14.33, JT, 20°, CN, PLN, SO, OP
					14.40, JT, 45°, VE, PLN, RF, OP
					14.46, BP, 0°, PLN, 60 mm
		14.5			
	Is(50) MPa a=0.95 Is(50) MPa d=0.2				
					14.70, JT, 40°, CN, PLN, RF, OP
					14.78, JT, 10°, CN, PLN, RF, OP
		15.0			

NMLC

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Garden Street

HOLE NO : SRT BH095
FILE / JOB NO : 21-25491
SHEET : 5 OF 6

POSITION : E: 330636.2, N: 6246066.1 (MGA94 / 56) SURFACE RL : 1.47 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 16/10/17 DATE COMPLETED : 16/10/17 DATE LOGGED : 16/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING | MATERIAL | NATURAL FRACTURES

PROGRESS: DRILLING & CASING = NMLC; WATER

CORE LOSS (RUN %) / DRILL DEPTH:
- 0% LOSS
- 16.40
- 0% LOSS
- 17.90
- 0% LOSS

SAMPLES & FIELD TESTS:
- Is(50) MPa a=1.13
- 16.40m
- Is(50) MPa a=1.08
- Is(50) MPa d=0.59
- 17.90m
- Is(50) MPa d=0.7 a=1.29
- Is(50) MPa d=0.78
- Is(50) MPa a=1.13

DEPTH/RL (m): 15.0, 15.5, 16.0, 16.5, 17.0, 17.5, 18.0, 18.5, 19.0, 19.5, 20.0

GRAPHIC LOG

DESCRIPTION
ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness,alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin)

INTERLAMINATED SILTSTONE / SANDSTONE, *(continued)*

16.20m

SILTSTONE, dark grey, indistinctly bedded

18.35-18.4m, claystone laminations (<10mm).

WEATHERING: Fr

ESTIMATED STRENGTH Is(50)MPa ● - Axial ○ - Diametral
EL .003 | VL .01 | L .03 | M .1 | H .3 | VH 1 | EH 10

SPACING (mm): 20, 40, 100, 300, 1000

VISUAL

ADDITIONAL DATA (joints, partings, seams, zones & veins)
Fracture Type, orientation, infilling or coating, shape, roughness, other

- 15.20, JT'sx2, 45°, VE, PLN, SO, OP
- 15.53, JT, 30°, CN, PLN, SO, OP
- 16.32, JT, 15°, CN, PLN, SO, OP
- 16.40, BP'sx2, 0°, PLN
- 16.70, JT, 70°, CN, PLN, SO, OP
- 17.00, BP, 0°, PLN, SO, CL
- 17.05, JT, 80°, CN, PLN, SO, OP
- 17.10, BP, 0°, PLN, SO, CL
- 17.40, JT, 80°, CN, PLN, SO, OP
- 17.60, JT, 45°, CN, PLN, SO, OP
- 17.70, JT, 15°, CN, PLN, SO, OP
- 17.80, JT, 80°, CN, PLN, SO, CL
- 18.29, BP, 0°, CN, PLN, SO, spun core
- 18.80, DB
- 19.10, JT, 40°, CN, PLN, SO, OP
- 19.70, JT, 40°, CN, PLN, SO, OP

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Garden Street

HOLE NO : SRT BH095
FILE / JOB NO : 21-25491
SHEET : 6 OF 6

POSITION : E: 330636.2, N: 6246066.1 (MGA94 / 56) SURFACE RL : 1.47 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 16/10/17 DATE COMPLETED : 16/10/17 DATE LOGGED : 16/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL >10, VH 3-10, H 1-3, M 0.3-1, L 0.1-0.3, VL 0.03-0.1, EL <0.03)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		0% LOSS	Is(50) MPa d=0.71 Is(50) MPa a=1.01	20.0		SILTSTONE, dark grey, indistinctly bedded *(continued)*	Fr				20.15, JT, 45°, CN, PLN, SO, OP 20.35, JT, 30°, CN, PLN, SO, OP
		20.65		20.5		20.65m BOREHOLE SRT BH095 TERMINATED AT 20.65 m Target depth					
				21.0							
				21.5							
				22.0							
				22.5							
				23.0							
				23.5							
				24.0							
				24.5							
				25.0							

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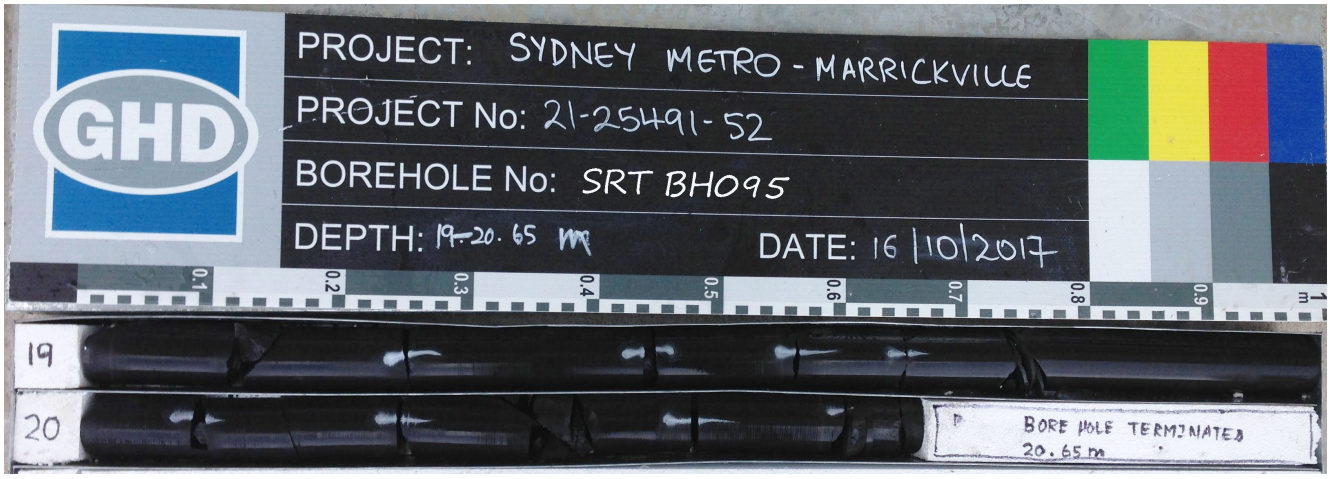
TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Garden Street CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH095 1/2	



TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Garden Street CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH095 2/2	

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Murray Street

HOLE NO : SRT BH096
FILE / JOB NO : 21-25491
SHEET : 1 OF 6

POSITION : E: 331063.4, N: 6246454.7 (MGA94 / 56) SURFACE RL : 4.32 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
					0.0			CONCRETE (210mm)			
								0.21m			
				0.30m D 0.50m				SAND, orange brown, fine to medium grained sand, with sub-angular to angular gravel, trace silt (fill)	SM		FILL 0.30m -0.50m, contamination sample=PID<1ppm
								0.50m			
				SPT 2, 2, 3 N=5				CLAY, pale grey with mottled brown, high plasticity clay, trace silt (residual)			RESIDUAL 0.50m SPT Recovery: 0.45 m 0.80m PP=200 kPa
				0.95m	1.0						
				1.50m SPT 3, 3, 4 N=7						F	1.50m -1.95m, contamination sample, PID<1ppm; SPT Recovery: 0.45 m 1.70m PP=300 kPa
				1.95m	2.0				VM		
							CH				
				3.00m SPT 4, 6, 7 N=13	3.0			From 3.2m, brown with mottled red.			3.00m -3.45m, contamination sample, PID<1ppm; SPT Recovery: 0.45 m
				3.45m							
					4.0					St	
				4.50m SPT 4, 9, 15 N=24							4.50m -4.95m, PID<1ppm; SPT Recovery: 0.45 m 4.70m PP>400 kPa
				4.95m					SM		
					5.0						

125mm SFA
HQ Casing

See Standard Sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Murray Street

HOLE NO : SRT BH096
FILE / JOB NO : 21-25491
SHEET : 2 OF 6

POSITION : E: 331063.4, N: 6246454.7 (MGA94 / 56) SURFACE RL : 4.32 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
125mm SFA HQ Casing					5.0			CLAY, pale grey with mottled brown, high plasticity clay, trace silt (residual) *(continued)*			RESIDUAL
				6.00m SPT 5, 9, 15 N=24	6.0			From 6.0m, pale grey.			6.00m SPT Recovery: 0.45 m
				6.45m				6.3m, trace indurated gravel.			6.20m PP>400 kPa
					7.0					St	
				7.50m SPT 4, 14, 15 N=29			CH		SM		7.50m SPT Recovery: 0.45 m
				7.95m	8.0						
				9.00m SPT 9, 19, 20 N=39	9.0						9.00m SPT Recovery: 0.45 m
				9.45m				9.4m, rock fabric evident.		VSt	
					10.0						

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Murray Street

HOLE NO : SRT BH096
FILE / JOB NO : 21-25491
SHEET : 3 OF 6

POSITION : E: 331063.4, N: 6246454.7 (MGA94 / 56) SURFACE RL : 4.32 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY/ DENSITY INDEX	COMMENTS / OBSERVATIONS
125mm SFA HQ Casing					10.0		CH	CLAY, pale grey with mottled brown, high plasticity clay, trace silt (residual) *(continued)*	SM	VSt	RESIDUAL
				10.50m				10.50m			
				SPT 30/150mm N=R 10.65m				SILTSTONE, dark grey; extremely weathered, very low strength			10.50m SPT Recovery: 0.15 m
				10.90m				10.90m			
								Continued as Cored Drill Hole			
					11.0						
					12.0						
					13.0						
					14.0						
					15.0						

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Murray Street

HOLE NO : SRT BH096
FILE / JOB NO : 21-25491
SHEET : 4 OF 6

POSITION : E: 331063.4, N: 6246454.7 (MGA94 / 56) SURFACE RL : 4.32 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ● - Axial O - Diametral (EL, VL, L, M, H, VH, EH)	SPACING (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
			10.90m	10.0							
				10.5							
			10.90m			10.90m START CORING AT 10.90m					
NMLC		8% LOSS		11.0		11.00m CORE LOSS 0.10m (10.90-11.00)					
			Is(50) MPa d=0.08 Is(50) MPa a=0.09			INTERLAMINATED SILTSTONE / SANDSTONE (60:40), siltstone is dark grey; sandstone is pale grey, fine grained, distinctly laminated.	MW / SW				11.10, SM, 0°, CLAY-VLS (10mm), PLN 11.18, SM, 0°, CLAY 5mm, PLN 11.27-11.30, FZ, 0°, PLN, fractured/fragmented 11.44, SM, 0°, CLAY 10mm, PLN 11.59, SM, 0°, CLAY 10mm, PLN
				11.5							
		12.10	12.10m	12.0							12.02-12.10, BP'sx3, 0-10°, PLN, SO, OP 12.15-12.24, FZ'sx5, 0-10°, PLN, SO, OP 12.30, WSM, 0°, HW, PLN, 20 mm, CL 12.38-12.48, BP'sx3 12.44, JT, 70-80°, ST, CL
		0% LOSS									
			Is(50) MPa d=0.09 Is(50) MPa a=0.76	12.5							12.57, SM, 0°, CLAY (5mm), PLN 12.64, WSM, 0-5°, CLAY-VSL (10mm), PLN
				13.0							12.85, WSM, 5°, EW/HW, 20 mm, CL 13.20, SM, 0-10°, HW, PLN
		13.30	13.30m								13.30-13.42, BP'sx3, 0-30°, PLN, OP
		0% LOSS				14.3m, becoming siltstone / sandstone (80:20).	SW / Fr				
			Is(50) MPa d=0.77 Is(50) MPa a=1.28	13.5							13.63-13.68, JT'sx2, 45°, PLN, fractured/fragmented 13.70, JT, 30-60°, CN, PLN, OP 13.80, JT, 75°, CN, PLN, OP
				14.0							14.05, JT'sx2, 50°, CN, PLN, OP 14.12, SM, 0-5°, CLAY 10mm, PLN 14.20, SM, 0-10°, CLAY-VLS (20mm), PLN
				14.5							14.60, JT, 15°, CN, PLN, OP
				15.0							14.90, JT'sx2, 40°, VE, PLN, OP

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Murray Street

HOLE NO : SRT BH096
FILE / JOB NO : 21-25491
SHEET : 5 OF 6

POSITION : E: 331063.4, N: 6246454.7 (MGA94 / 56) SURFACE RL : 4.32 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) / DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION (ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin))	WEATHERING	ESTIMATED STRENGTH (Is(50)MPa ● - Axial O - Diametral) EL -0.03 VL -0.1 L -0.3 M -1 H -3 VH -10 EH	SPACING (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		0% LOSS 15.20 0% LOSS	15.20m Is(50) MPa d=0.08 Is(50) MPa a=1.28	15.0 15.5		INTERLAMINATED SILTSTONE / SANDSTONE (60:40), siltstone is dark grey; sandstone is pale grey, fine grained, distinctly laminated. *(continued)*	SW / Fr				15.05-15.15, JT'sx3, 45°, CN, PLN, OP 15.66-15.86, JT'sx4, 30-60°, CN, PLN, OP
				16.0							16.15, BP'sx3, 0°, CN, PLN, SO, CL 16.25, JT, 40°, VE, PLN, OP
				16.5		From 16.80m, becomine siltstone.					16.42-16.46, BP'sx3, 0°, PLN 16.59, BP, 0°, CN, PLN, SO, CL 16.82, JT, 50°, CN, PLN, OP
				17.0		17.35m SILTSTONE, dark grey, indistinctly bedded.					17.11-17.21, JT'sx4, 20-45°, CN, PLN, OP 17.26, JT, 10°, CN, PLN, OP 17.40, JT, 40°, CN, PLN, OP
		17.60 0% LOSS	17.60m Is(50) MPa d=0.93 Is(50) MPa a=1.57	17.5							17.55, BP, 0°, CN, PLN, CL 17.70, JT'sx2, 30°, VE, PLN, OP
				18.0							18.08, BP'sx3, 0°, CN, PLN, SO, OP
			Is(50) MPa d=0.82 a=1.27	18.5 19.0							
				19.5							19.60, JT'sx2, 40°, CN, PLN, OP
			Is(50) MPa d=0.82	20.0							

See Standard Sheets for details of abbreviations & basis of descriptions

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CORE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Murray Street

HOLE NO : SRT BH096
FILE / JOB NO : 21-25491
SHEET : 6 OF 6

POSITION : E: 331063.4, N: 6246454.7 (MGA94 / 56) SURFACE RL : 4.32 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 12/10/17 DATE COMPLETED : 12/10/17 DATE LOGGED : 12/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING					MATERIAL			NATURAL FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS / RUN %) DRILL DEPTH	SAMPLES & FIELD TESTS	DEPTH/RL (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, moisture, colour, consistency, structure, minor components (origin)	WEATHERING	ESTIMATED STRENGTH Is(50)MPa ●- Axial O- Diametral EL >10 / VL 3-10 / L 1-3 / M 0.3-1 / H 0.1-0.3 / VH 0.03-0.1 / EH <0.03	SPACING (mm) 20 / 40 / 100 / 300 / 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones & veins) Fracture Type, orientation, infilling or coating, shape, roughness, other
NMLC		0% LOSS 20.70	Is(50) MPa a=0.86	20.0 20.5		SILTSTONE, dark grey, indistinctly bedded. *(continued)*	SW / Fr				20.32, JT, 40°, CN, PLN, OP 20.50, JT, 30°, CN, PLN, OP
						20.70m BOREHOLE SRT BH096 TERMINATED AT 20.70 m Target depth					
				21.0 21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0							

See Standard Sheets for details of abbreviations & basis of descriptions

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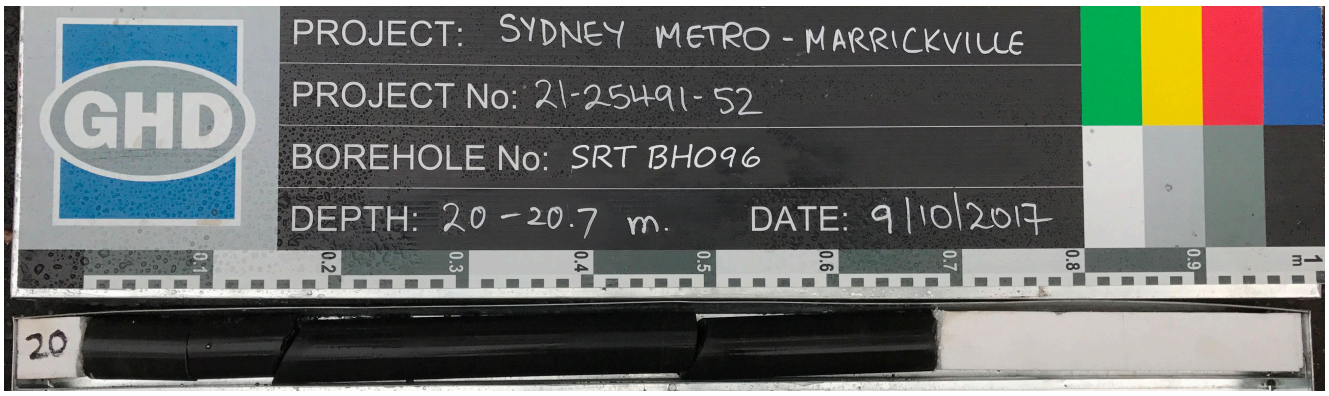
AGS 3_1 RTA 1_1 LIB 06.1 GHD 2.02.GLB GrfcTbl DG PHOTO CORE PHOTO 2 PER PAGE 2125491_SYDM_MARRICKVILLE.GPJ <<DrawingFile>> 26/10/2017 14:13 8.30.004

TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Murray Street CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017	
	K Holden	DATE: 8/11/2017	
	SCALE: Not To Scale		A4
	PROJECT No: 21-25491	FIGURE No: SRT BH096 1/2	



	TITLE: Transport for New South Wales Sydney Metro - Sydenham to Bankstown Murray Street CORE PHOTOGRAPHS	DRAWN: H Warr	DATE: 8/11/2017
		K Holden	DATE: 8/11/2017
		SCALE: Not To Scale	A4
		PROJECT No: 21-25491	FIGURE No: SRT BH096 2/2

BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Portion 5

HOLE NO : SRT LD681
FILE / JOB NO : 21-25491
SHEET : 1 OF 1

POSITION : E: 330836.5, N: 6246265.5 (MGA94 / 56) SURFACE RL : 3.81 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 13/10/17 DATE COMPLETED : 13/10/17 DATE LOGGED : 13/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
	N/A				0.0			CONCRETE			
				0.20m				0.18m			
				D 0.30m B				Sandy CLAY, pale grey, brown, low plasticity clay, fine to medium grained sand (fill)	M		FILL 0.30m PP=100 kPa
				0.50m				0.50m			0.40m contamination sample, PID<1ppm
300mm SFA				SPT 2/2/3 N=5				CLAY, pale grey mottled red, high plasticity clay, traces of silt (residual)			RESIDUAL 0.50m SPT Recovery: 0.45 m
				0.80m							
				0.95m	1.0						
				1.30m						F	
				B 1.50m D							
				1.60m							
			Groundwater Not Encountered	1.80m							
				2.00m	2.0						
				SPT 3/5/8 N=13							2.00m SPT Recovery: 0.45 m
				2.45m					VM		2.20m PP=250 kPa
				2.90m							
125mm SFA				D 3.00m	3.0					St	
				3.50m							
				SPT 4/7/9 N=16							3.50m SPT Recovery: 0.45 m
				3.95m							3.70m PP>300 kPa
					4.0			4.00m BOREHOLE SRT LD681 TERMINATED AT 4.00 m Target depth			
					5.0						

See Standard Sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Portion 5

HOLE NO : SRT LD682
FILE / JOB NO : 21-25491
SHEET : 1 OF 1

POSITION : E: 330940.7, N: 6246247.3 (MGA94 / 56) SURFACE RL : 5.33 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 13/10/17 DATE COMPLETED : 13/10/17 DATE LOGGED : 13/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
	N/A			0.05m	0.0			0.05m ASPHALT			
				D 0.20m				SAND, white and dark grey, medium grained sand (fill) 0.20m	D		FILL
				B D 0.50m				Clayey SAND, grey/brown, low plasticity clay, black, medium grained sand, with gravel	M		
				SPT 4/7/8 N=15				0.60m			0.50m SPT Recovery: 0.45 m
300mm SFA				0.95m	1.0			CLAY, pale grey mottled red, high plasticity clay, traces of silt (residual)			RESIDUAL 0.70m PP>400 kPa 0.80m contamination sample, PID<1ppm
				1.20m B 1.40m D 1.60m 1.70m							
			Groundwater Not Encountered	2.00m SPT 3/13/16 N=29	2.0		CH		VM	St	2.00m SPT Recovery: 0.45 m 2.20m PP>400 kPa
125mm SFA				2.45m	3.0			3.0m, pale grey.			
				3.50m SPT 5/8/10 N=18							3.50m SPT Recovery: 0.45 m 3.70m PP>400 kPa
				3.95m	4.0			4.00m BOREHOLE SRT LD682 TERMINATED AT 4.00 m Target depth			
					5.0						

See Standard Sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

CLIENT : Transport for New South Wales
PROJECT : Sydney Metro - Sydenham to Bankstown
LOCATION : Portion 5

HOLE NO : SRT LD683
FILE / JOB NO : 21-25491
SHEET : 1 OF 1

POSITION : E: 330945.7, N: 6246352.8 (MGA94 / 56) SURFACE RL : 4.18 (AHD) ANGLE FROM HORIZONTAL: 90°

RIG TYPE : COMMACHIO 205 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : T Redman

DATE STARTED : 13/10/17 DATE COMPLETED : 13/10/17 DATE LOGGED : 13/10/17 LOGGED BY : DP CHECKED BY : ARF

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH / RL (m)	GRAPHIC LOG	USC SYMBOL	Description: SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	MOISTURE CONDITION	CONSISTENCY / DENSITY INDEX	COMMENTS / OBSERVATIONS
	N/A			0.05m	0.0			0.05m ASPHALT			
				D 0.15m				0.15m Clayey SAND, black-brown, fine to medium grained sand, with angular to sub-angular gravel (fill)			FILL
				D				CLAY, grey, high plasticity clay, with sand and gravel (alluvium)			ALLUVIUM
				0.50m SPT+D 0/2/2 N=4			CH		M	F	0.30m PP=80 kPa 0.50m SPT Recovery: 0.45 m
				0.80m				0.80m			0.70m PP=120 kPa
300mm SFA				D 0.95m	1.0			CLAY, pale grey mottled red, high plasticity clay (residual)			RESIDUAL 0.95m contamination sample, PID<1ppm
			Groundwater Not Encountered	1.50m SPT+D 3/5/8 N=13							1.50m SPT Recovery: 0.45 m
				1.95m				1.8m, becoming mottled red.			1.80m PP=200 kPa
				2.00m	2.0						
				3.00m SPT 2/3/5 N=8	3.0		CH	3.0m, pale grey.	VM	St	3.00m SPT Recovery: 0.45 m 3.20m PP=180 kPa
125mm SFA				3.45m							
				3.50m D							
				4.00m	4.0			4.00m BOREHOLE SRT LD683 TERMINATED AT 4.00 m Target depth			
					5.0						

See Standard Sheets for details of abbreviations & basis of descriptions

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Appendix D – Geotechnical Laboratory Test Reports

Sydney Laboratory
Unit 5/43 Herbert St
Artarmon NSW 2064
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web: www.ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax:(02) 9462 4710

Aggregate/Soil Test Report

Report No: SYD1702635
Issue No: 1
This report replaces all previous issues of report no 'SYD1702635'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: Steve Ihnativ (Senior Laboratory Technician)

Date of Issue: 16/11/2017

Sample Details

GHD Sample No	SYD17-0516-05
Sampled By	Sampled by GHD
BH / TP No.	SRT-LD682
Depth (m)	3.5-3.95
Soil Description	CLAY: trace sand & gravel

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	18.9	
Date Tested		30/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	9.5	
Mould Length (mm)		125	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	47	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	24	
Plasticity Index (%)	AS 1289.3.3.1	23	
Date Tested		2/11/2017	

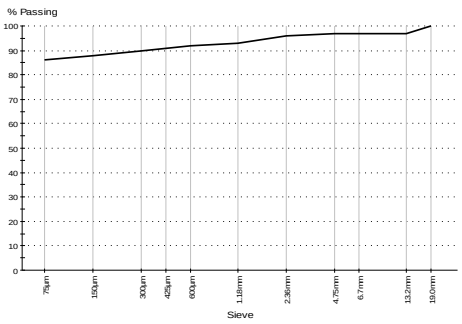
Particle Size Distribution

Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 1/11/2017

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	97	
6.7mm	97	
4.75mm	97	
2.36mm	96	
1.18mm	93	
600µm	92	
425µm	91	
300µm	90	
150µm	88	
75µm	86	

Chart



Comments

N/A

Sydney Laboratory
Unit 5/43 Herbert St
Artarmon NSW 2064
email: artarmon@ghd.com.au
web: www.ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax:(02) 9462 4710

Aggregate/Soil Test Report

Report No: SYD1702632
Issue No: 1
This report replaces all previous issues of report no 'SYD1702632'.

Client: Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 15/11/2017

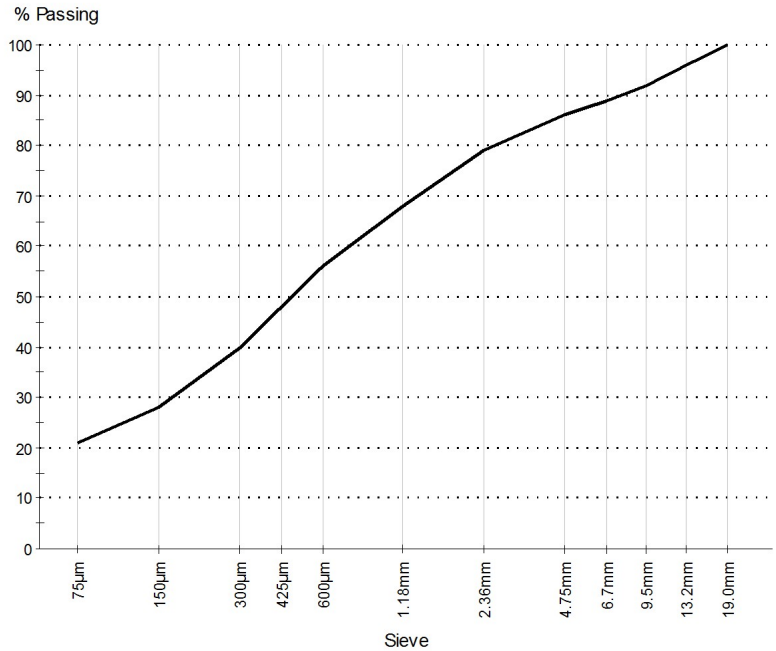
Sample Details

GHD Sample No	SYD17-0516-06
Sampled By	Sampled by GHD
BH / TP No.	SRT-LD683
Depth (m)	0.05-0.15
Soil Description	Clayey SAND: with gravel (see comments)

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	10.6	
Date Tested		27/10/2017	

Particle Size Distribution



Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 2/11/2017

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	96	
9.5mm	92	
6.7mm	89	
4.75mm	86	
2.36mm	79	
1.18mm	68	
600µm	56	
425µm	48	
300µm	40	
150µm	28	
75µm	21	

Comments

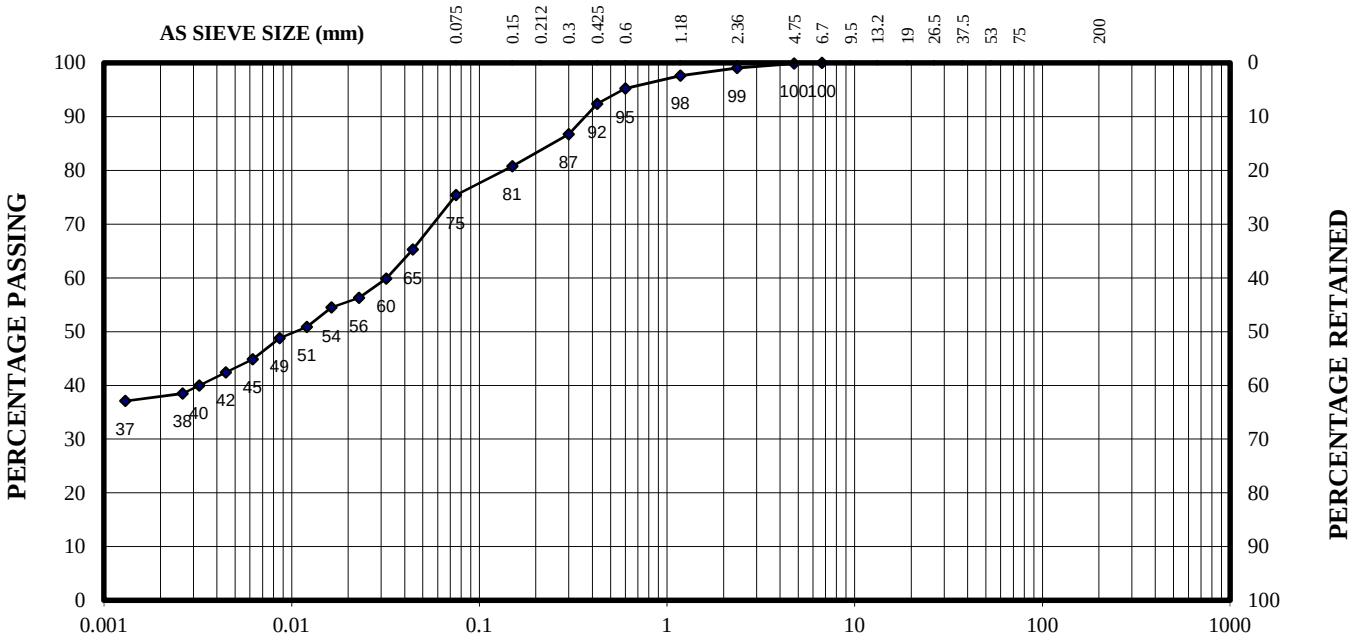
Insufficient sample mass to comply with minimum mass requirements AS1289 1.1

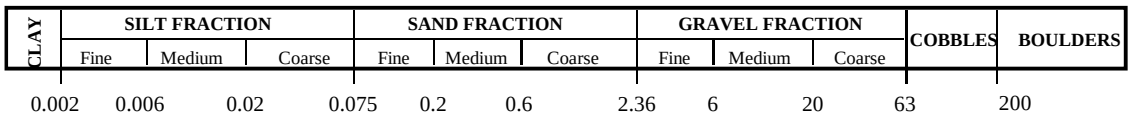
SOIL CLASSIFICATION REPORT

Trial Hole:	SRT_LD681
Depth (m):	0.20-0.50m
Sample No:	SYD17-0516-01

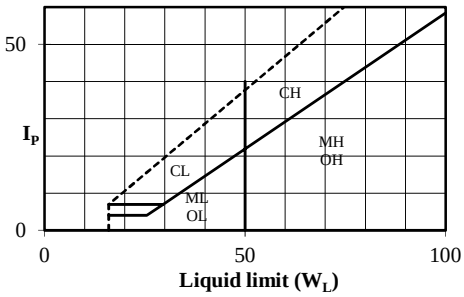
Client: Transport for NSW
Project: Sydney Metro
Location: Marrickville

Client Sample No.: n/a
Sample History: Sampled by GHD





PARTICLE SIZE (mm)



TEST METHODS
Particle size AS1289.3.6.3

OTHER TESTS AS1289.2.1.1
AS1289.3.5.1

GRADING
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30}^2 / (D_{10} \times D_{60})$ = not determinable

PARTICLE DENSITY 2.606 (measured)

PRE-TREATMENT HYDROMETER No

TEST CONDITION Washed sieve with dispersing agent

GROUP SYMBOL:

SOIL NAME: CLAY with sand

INDEX PROPERTIES (%)
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % = Not determined

Atterberg Limits (History/preparation)

Liquid Limit (type of test)

Linear Shrinkage (mould size)

REMARKS: Field Moisture Content = 26.5 %

Tested by: AM
Date tested: 3.11.17
Checked by: GV
Date checked: 15/11/2017

GHD Pty Ltd
Unit 5 / 43 Herbert St, Artarmon NSW, 2064
Tel: (02) 9462 4700 Fax: (02) 9462 4710

Approved Signatory:
D. Brooke
15/11/2017

Accredited for compliance with ISO/IEC 17025 - Testing

Laboratory Accreditation Number - 679

JOB No.	**2125491/52**
REPORT No.	**SYD1702633**

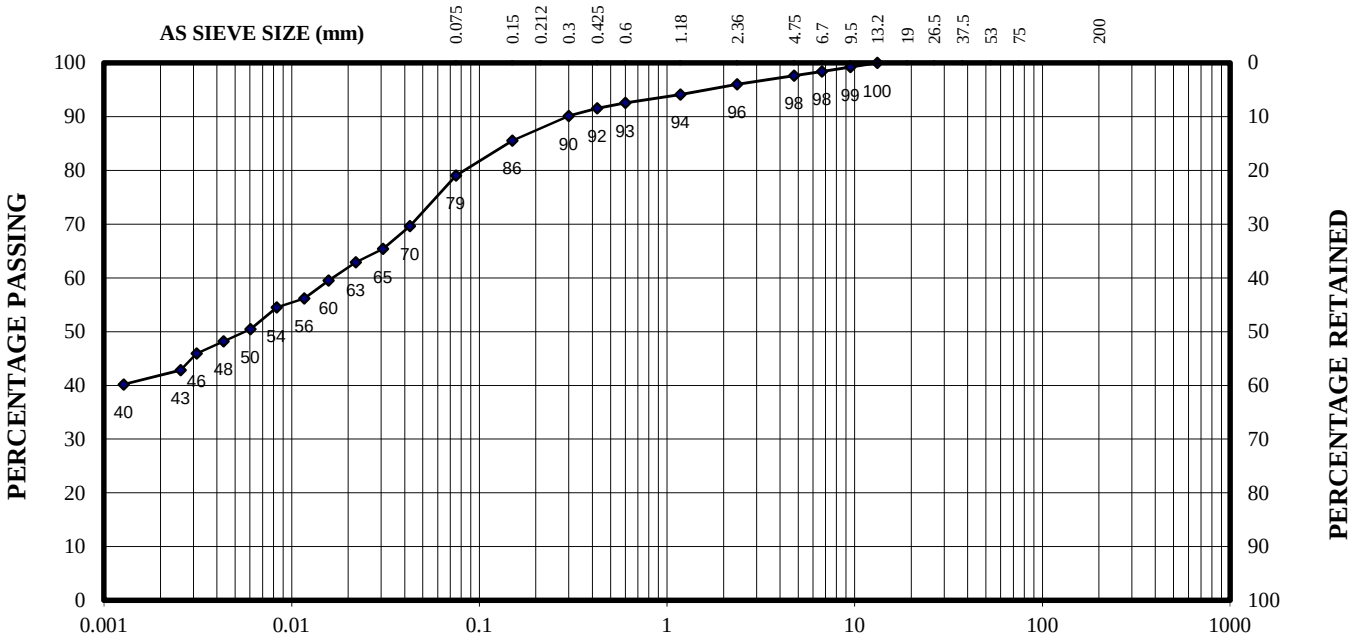
Ref: Document F9.1.16 issue 1.2

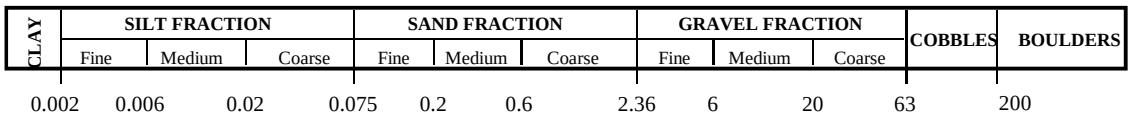
SOIL CLASSIFICATION REPORT

Trial Hole:	SRT_LD681
Depth (m):	0.30-0.80m
Sample No:	SYD17-0516-03

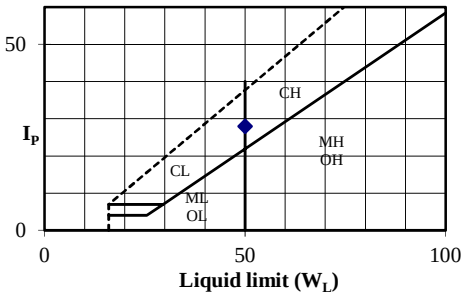
Client: Transport for NSW
Project: Sydney Metro
Location: Marrickville

Client Sample No.: n/a
Sample History: Sampled by GHD





PARTICLE SIZE (mm)



TEST METHODS
Particle size AS1289.3.6.3

OTHER TESTS AS1289.2.1.1 AS1289.3.1.2
AS1289.3.3.1 AS1289.3.4.1 AS1289.3.5.1

GRADING
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30}^2 / (D_{10} \times D_{60})$ = not determinable

PARTICLE DENSITY 2.597 (measured)

PRE-TREATMENT HYDROMETER No

TEST CONDITION Washed sieve with dispersing agent

GROUP SYMBOL: CH

INDEX PROPERTIES (%)
Liquid Limit = 50 Plastic Limit = 22
Plasticity Index = 28 Linear Shrinkage % = 13.5

Atterberg Limits (History/preparation) Dry / oven dry

Liquid Limit (type of test) 4 point

Linear Shrinkage (mould size) 125 mm

SOIL NAME: CLAY: with sand brown with red & orange

REMARKS:

Tested by: AM
Date tested: 3.11.17
Checked by: GV
Date checked: 15/11/2017

GHD Pty Ltd
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Approved Signatory:
D. Brooke
15/11/2017

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Laboratory Accreditation Number - 679

JOB No.	**2125491/52**
REPORT No.	**SYD1702608.1**

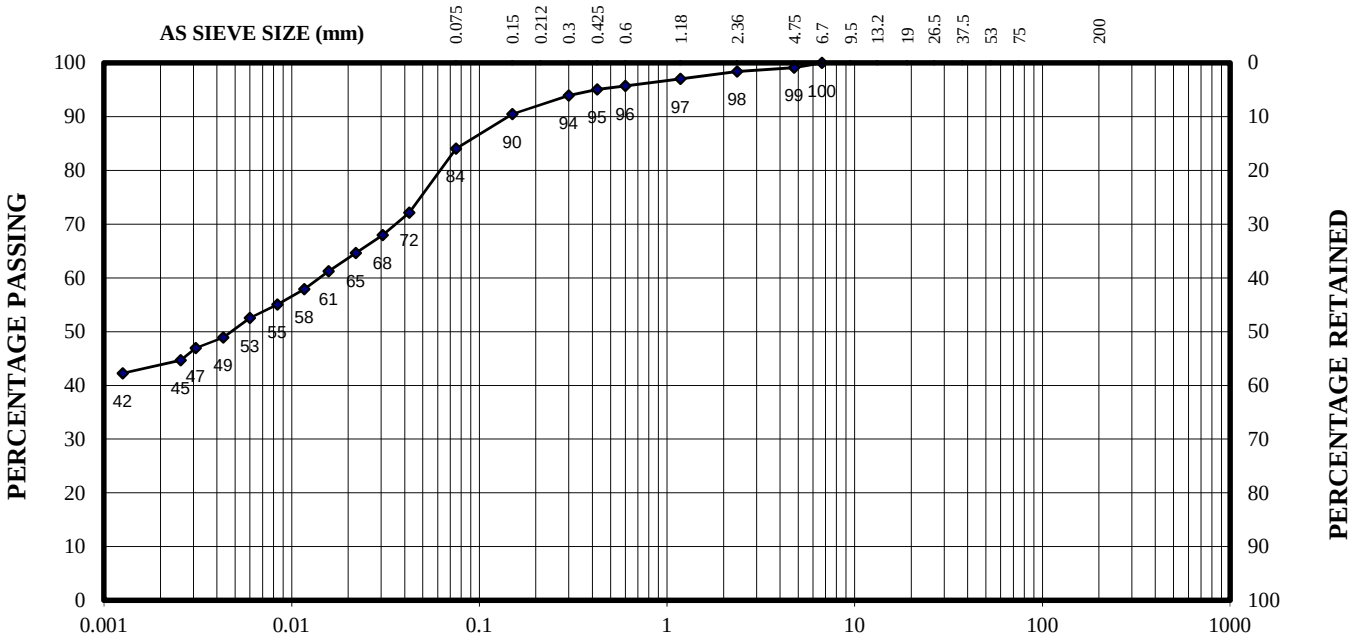
Ref: Document F9.1.16 issue 1.2

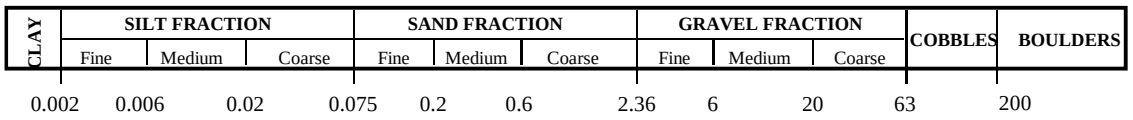
SOIL CLASSIFICATION REPORT

Trial Hole:	SRT_LD681
Depth (m):	0.50-0.95m
Sample No:	SYD17-0516-02

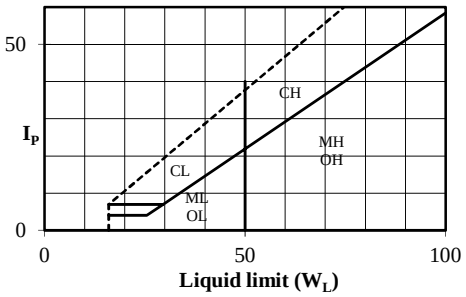
Client: Transport for NSW
Project: Sydney Metro
Location: Marrickville

Client Sample No.: n/a
Sample History: Sampled by GHD





PARTICLE SIZE (mm)



TEST METHODS
Particle size AS1289.3.6.2

OTHER TESTS AS1289.2.1.1
AS1289.3.5.1

GRADING
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30}^2 / (D_{10} \times D_{60})$ = not determinable

PARTICLE DENSITY 2.602 (measured)

PRE-TREATMENT HYDROMETER No

TEST CONDITION Washed sieve with dispersing agent

GROUP SYMBOL:

SOIL NAME: CLAY: with sand

REMARKS: Field Moisture Content = 27.6 %

INDEX PROPERTIES (%)
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % = Not determined

Atterberg Limits (History/preparation)

Liquid Limit (type of test)

Linear Shrinkage (mould size)

Tested by:	AM
Date tested:	10.11.17
Checked by:	GV
Date checked:	15/11/2017

GHD Pty Ltd
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Approved Signatory:

D. Brooke
15/11/2017

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Laboratory Accreditation Number - 679

JOB No.	**2125491/52**
REPORT No.	**SYD1702634**

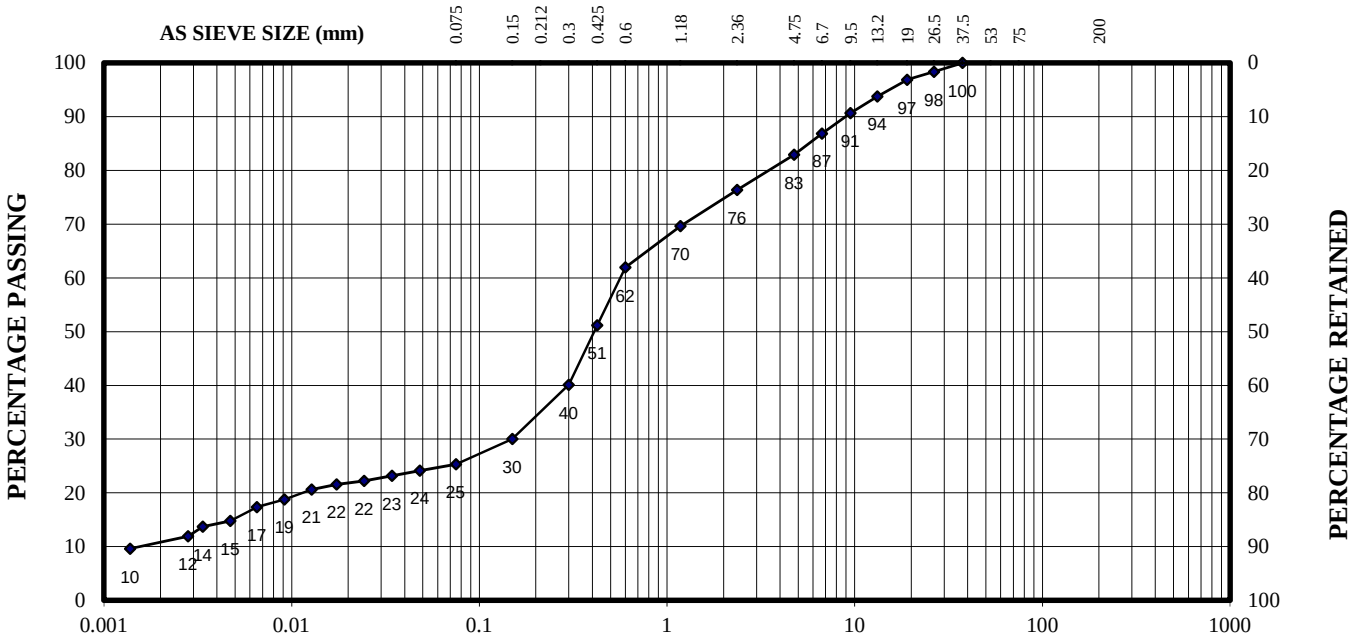
Ref: Document F9.1.16 issue 1.2

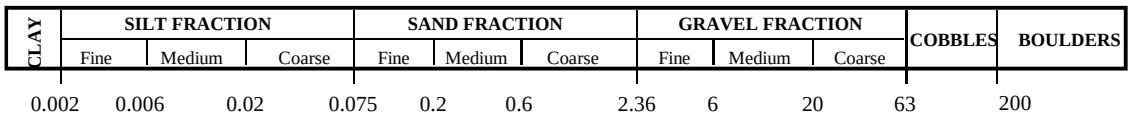
SOIL CLASSIFICATION REPORT

Trial Hole:	SRT_LD682
Depth (m):	0.20-0.70m
Sample No:	SYD17-0516-04

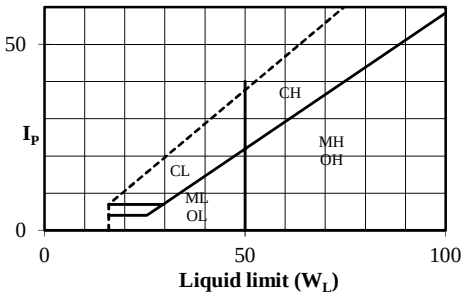
Client: Transport for NSW
Project: Sydney Metro
Location: Marrickville

Client Sample No.: n/a
Sample History: Sampled by GHD





PARTICLE SIZE (mm)



TEST METHODS
Particle size AS1289.3.6.3

OTHER TESTS AS1289.2.1.1
AS1289.3.5.1

GRADING
$C_u = D_{60} / D_{10} =$ 352.7
$C_c = D_{30}^2 / (D_{10} \times D_{60}) =$ 24.5

PARTICLE DENSITY 2.591 (measured)

PRE-TREATMENT HYDROMETER No

TEST CONDITION Washed sieve with dispersing agent

GROUP SYMBOL:

SOIL NAME: Clayey SAND: with gravel

INDEX PROPERTIES (%)
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % = Not determined

Atterberg Limits (History/preparation)

Liquid Limit (type of test)

Linear Shrinkage (mould size)

REMARKS: Field Moisture Content = 20.8 %

Tested by: AM
Date tested: 10.11.17
Checked by: GV
Date checked: 15/11/2017

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Approved Signatory:
D. Brooke
15/11/2017

Accredited for compliance with ISO/IEC 17025 - Testing

Laboratory Accreditation Number - 679

JOB No.	**2125491/52**
REPORT No.	**SYD1702609**

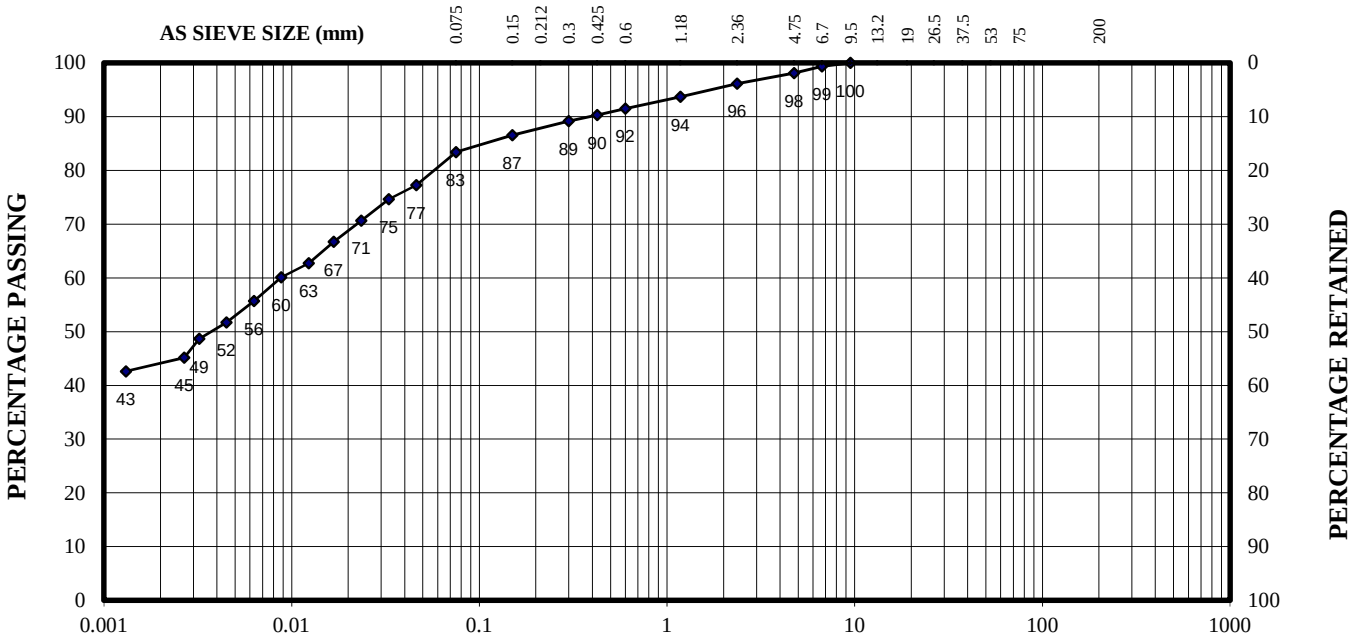
Ref: Document F9.1.16 issue 1.2

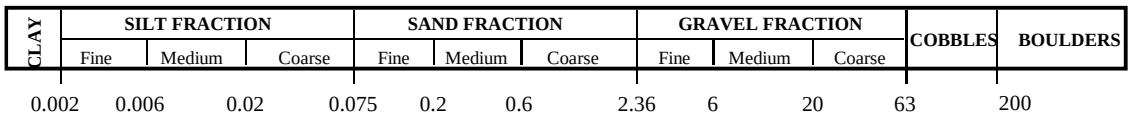
SOIL CLASSIFICATION REPORT

Trial Hole:	SRT_LD683
Depth (m):	1.50-1.95m
Sample No:	SYD17-0516-07

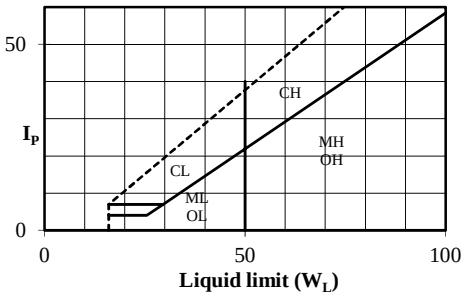
Client: Transport for NSW
Project: Sydney Metro
Location: Marrickville

Client Sample No.: n/a
Sample History: Sampled by GHD





PARTICLE SIZE (mm)



TEST METHODS
Particle size AS1289.3.6.3

OTHER TESTS

GRADING
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30}^2 / (D_{10} \times D_{60})$ = not determinable

PARTICLE DENSITY 2.659 (measured)

PRE-TREATMENT HYDROMETER No

TEST CONDITION Washed sieve with dispersing agent

GROUP SYMBOL:

SOIL NAME: CLAY: some sand & trace gravel

REMARKS:

INDEX PROPERTIES (%)
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % = Not determined

Atterberg Limits (History/preparation)

Liquid Limit (type of test)

Linear Shrinkage (mould size)

Tested by:	AM
Date tested:	10.11.17
Checked by:	GV
Date checked:	15/11/2017

GHD Pty Ltd
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Approved Signatory:

D. Brooke
15/11/2017

Accredited for compliance with ISO/IEC 17025 - Testing

Laboratory Accreditation Number - 679

JOB No.	**2125491/52**
REPORT No.	**SYD1702649**

Ref: Document F9.1.16 issue 1.2

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Aggregate/Soil Test Report

Report No: SYD1702533
Issue No: 2
This report replaces all previous issues of report no 'SYD1702533'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 7/11/2017

Sample Details

GHD Sample No	SYD17-0495-07
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH090
Depth (m)	3.0 - 3.45
Soil Description	CLAY: mottled orange/red/grey

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	26.5	
Date Tested		25/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	13.0	
Mould Length (mm)		125	
Crumbling		No	
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	58	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	25	
Plasticity Index (%)	AS 1289.3.3.1	33	
Date Tested		25/10/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702528
Issue No: 2
This report replaces all previous issues of report no 'SYD1702528'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 7/11/2017

Sample Details

GHD Sample No	SYD17-0495-02
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH092
Depth (m)	0.5 - 0.95
Soil Description	CLAY: mottled grey/red/brown

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	22.7	
Date Tested		18/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	N/A	
Mould Length (mm)		0	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	59	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	23	
Plasticity Index (%)	AS 1289.3.3.1	36	
Date Tested		25/10/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702529
Issue No: 2
This report replaces all previous issues of report no 'SYD1702529'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 7/11/2017

Sample Details

GHD Sample No	SYD17-0495-03
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH092
Depth (m)	1.5 - 1.95
Soil Description	CLAY with sand and gravel: grey/red

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	12.8	
Date Tested		18/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	Not Tested	
Mould Length (mm)		0	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	34	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	21	
Plasticity Index (%)	AS 1289.3.3.1	13	
Date Tested		25/10/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702531
Issue No: 2
This report replaces all previous issues of report no 'SYD1702531'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 7/11/2017

Sample Details

GHD Sample No	SYD17-0495-05
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH093
Depth (m)	2.5 - 2.95
Soil Description	CLAY: pale brown/grey

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	27.0	
Date Tested		18/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.0	
Mould Length (mm)		125	
Crumbling		No	
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	66	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	24	
Plasticity Index (%)	AS 1289.3.3.1	42	
Date Tested		25/10/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702585
Issue No: 1
This report replaces all previous issues of report no 'SYD1702585'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 15/11/2017

Sample Details

GHD Sample No	SYD17-0511-02
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH094
Depth (m)	0.6 - 0.9
Soil Description	CLAY: grey brown

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	27.1	
Date Tested		26/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	6.5	
Mould Length (mm)		125	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	56	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	34	
Date Tested		31/10/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702584
Issue No: 1
This report replaces all previous issues of report no 'SYD1702584'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 15/11/2017

Sample Details

GHD Sample No	SYD17-0511-01
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH094
Depth (m)	1.0 - 1.3
Soil Description	CLAY: mottled pale brown, brown, red & grey

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	26.6	
Date Tested		26/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	20.0	
Mould Length (mm)		125	
Crumbling		No	
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	68	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	46	
Date Tested		31/10/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702610
Issue No: 2
This report replaces all previous issues of report no 'SYD1702610'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 7/11/2017

Sample Details

GHD Sample No	SYD17-0521-01
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH095
Depth (m)	0.5 - 0.95
Soil Description	CLAY: mottled grey/brown/orange/red

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	29.0	
Date Tested		30/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	13.0	
Mould Length (mm)		125	
Crumbling		No	
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	69	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	47	
Date Tested		2/11/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702647
Issue No: 2
This report replaces all previous issues of report no 'SYD1702647'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 7/11/2017

Sample Details

GHD Sample No	SYD17-0521-02
Sampled By	Sampled by GHD
BH / TP No.	SRT_BH095
Depth (m)	1.5-1.95
Soil Description	CLAY: pale grey/grey with orange steaks

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	22.5	
Date Tested		30/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	17.0	
Mould Length (mm)		125	
Crumbling		No	
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	72	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	55	
Date Tested		2/11/2017	

Comments

N/A

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Aggregate/Soil Test Report

Report No: SYD1702656
Issue No: 1
This report replaces all previous issues of report no 'SYD1702656'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 15/11/2017

Sample Details

GHD Sample No	SYD17-0516-10
Date Sampled	13/10/2017
Sampled By	Sampled by GHD
BH / TP No.	SRT_LD683
Depth (m)	0.15 - 0.5
Soil Description	CLAY: grey

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	7.0	
Mould Length (mm)		125	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	59	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	21	
Plasticity Index (%)	AS 1289.3.3.1	38	
Date Tested		9/11/2017	

Comments

N/A

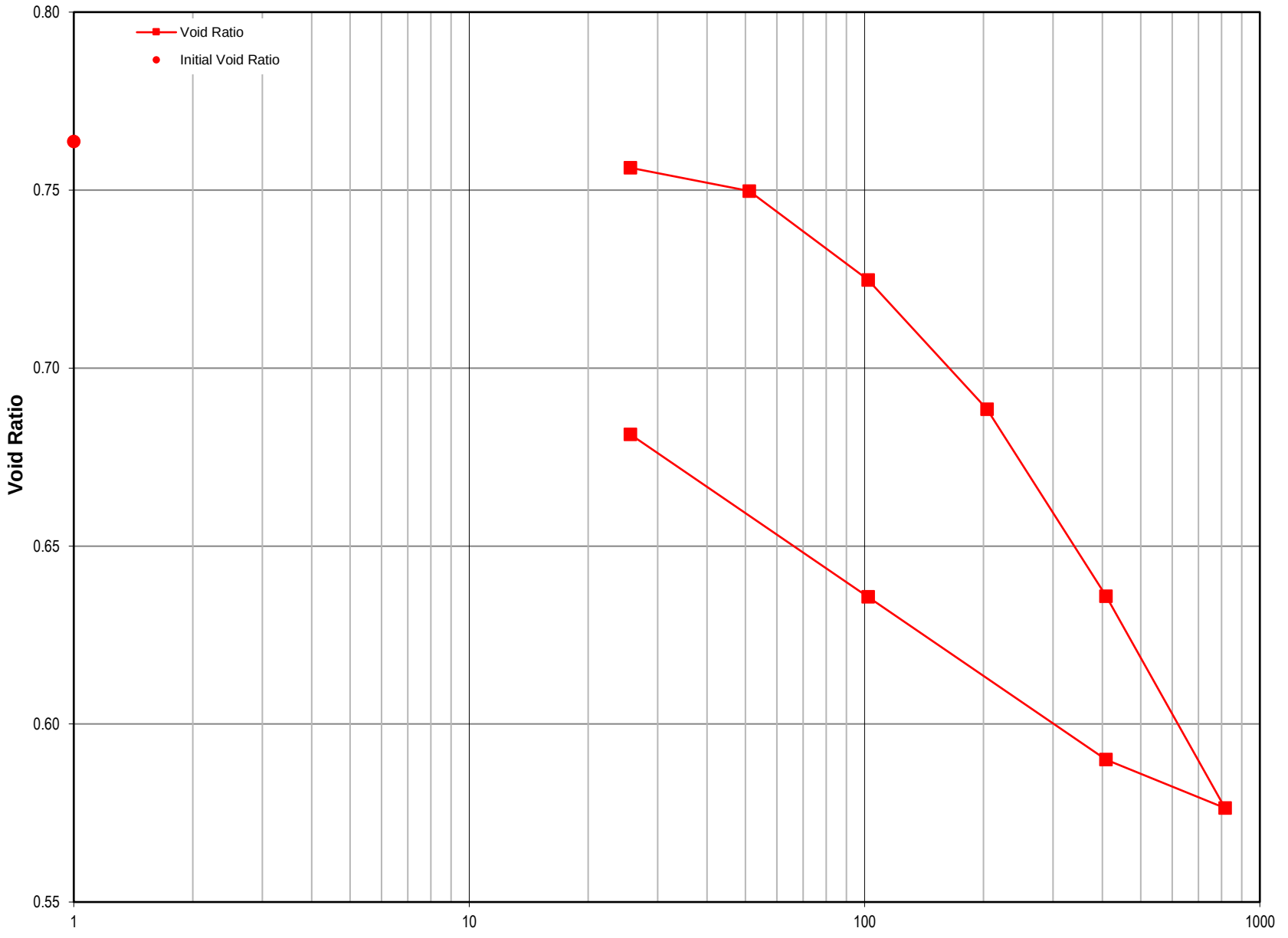
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017

Client ID:	n/av	**Test Hole:**	SRT - BH090	**Depth (m):**	2.50 to 2.75

Description: grey mottled red brown CLAY



Initial Dry Density (t/m^3):	1.49	Initial Moisture (%):	28.9	Initial Height (mm):	18.9	Load at inundation (kPa):	26
Particle Density (t/m^3):	2.63	Initial Voids Ratio:	0.764	Initial Diameter (mm):	70.0	Initial Degree of Saturation (%):	99.7

Sample Type:	70mm Sample Tube	Remarks:	Water with a conductivity of 350 µS used for inundation, to match soil conditions

Tested By: S. Ihnativ

Checked By: DB

Approved Signatory:

D. Brooke

Date: 6/11/2017

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Laboratory Accreditation Number 679

Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017
Client ID:	n/av	**Test Hole:** SRT - BH090	**Depth (m):** 2.50 to 2.75
Description:	grey mottled red brown CLAY		

TEST RESULTS

Stage	Load (kPa)	C_c	C_v (m^2/yr) t_{50}	C_v (m^2/yr) t_{90}	m_v (MPa^{-1})	Void Ratio	% Consolidation
1	26	0.013	*	-	0.236	0.756	0.4
2	51	0.022	21.65	-	0.145	0.750	0.8
3	102	0.083	1.87	-	0.280	0.725	2.2
4	204	0.121	1.07	-	0.206	0.688	4.3
5	408	0.175	0.88	-	0.152	0.636	7.2
6	817	0.198	0.90	-	0.089	0.576	10.6
7	408	0.045	2.15	-	0.021	0.590	9.8
8	102	0.076	0.53	-	0.094	0.636	7.3
9	26	0.076	0.15	-	0.365	0.681	4.7

* Value unable to be determined

Remarks: Water with a conductivity of 350 µS used for inundation, to match soil conditions

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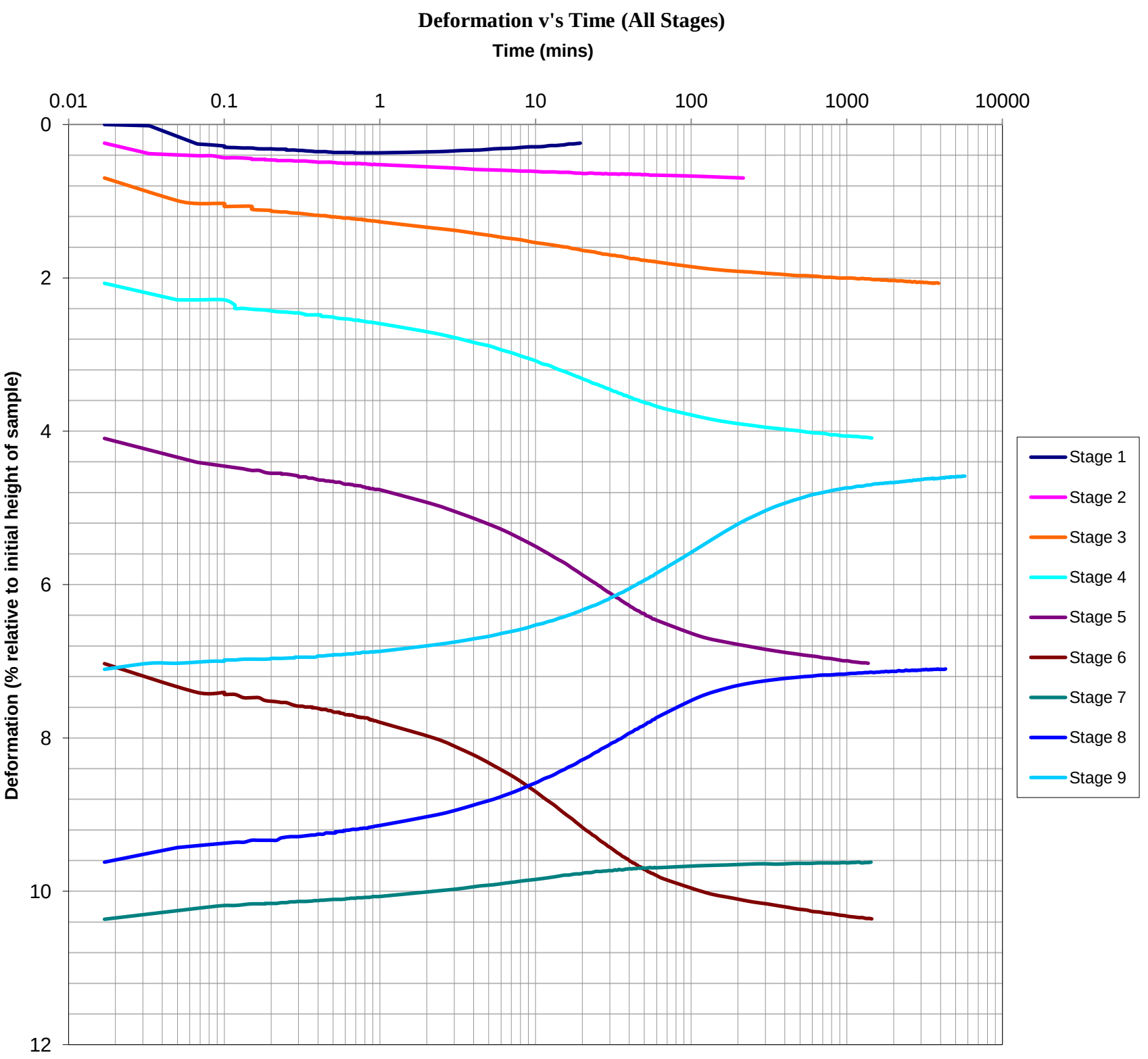
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017
Client ID:	n/av **Test Hole:** SRT - BH090	**Depth (m):**	2.50 to 2.75
Description:	grey mottled red brown CLAY		



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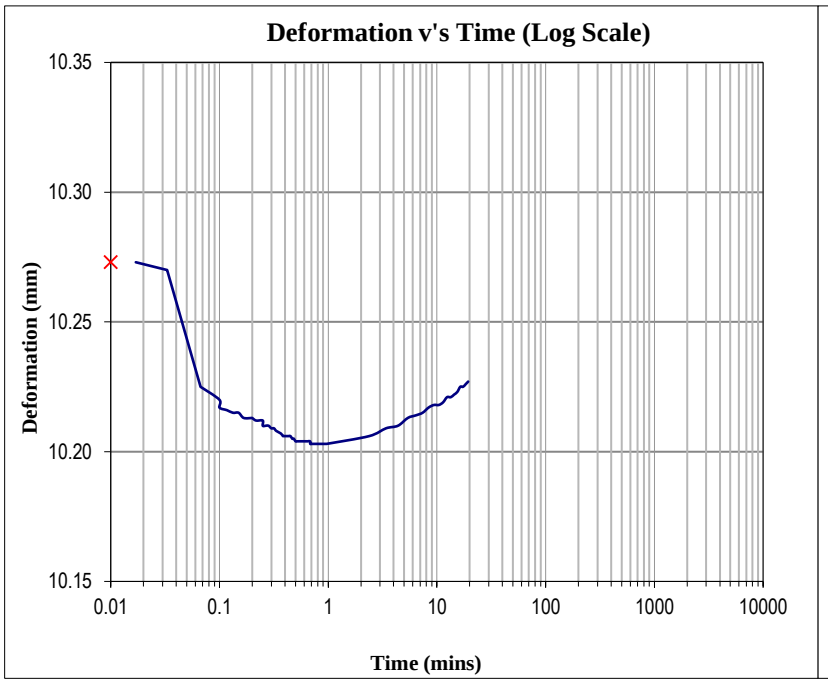
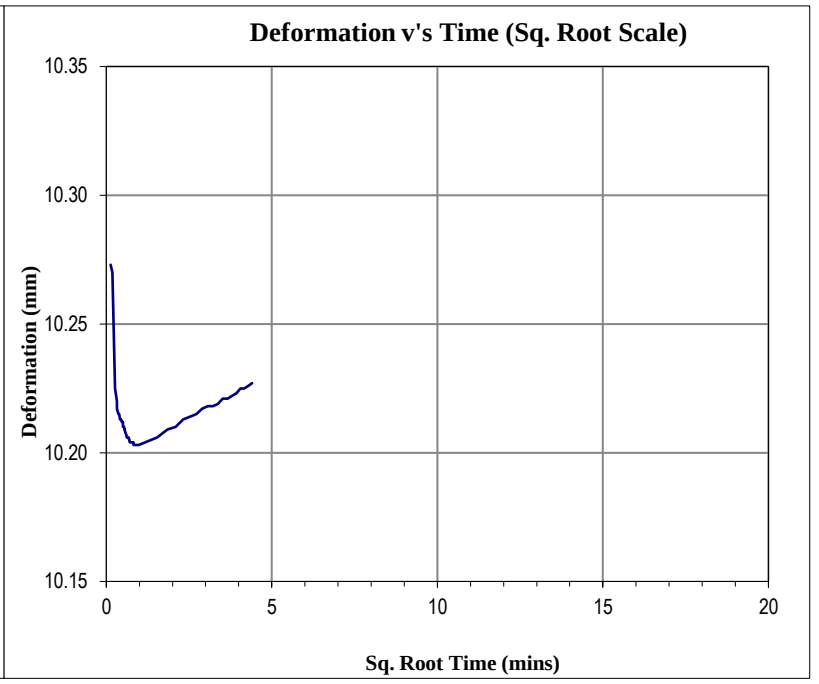
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

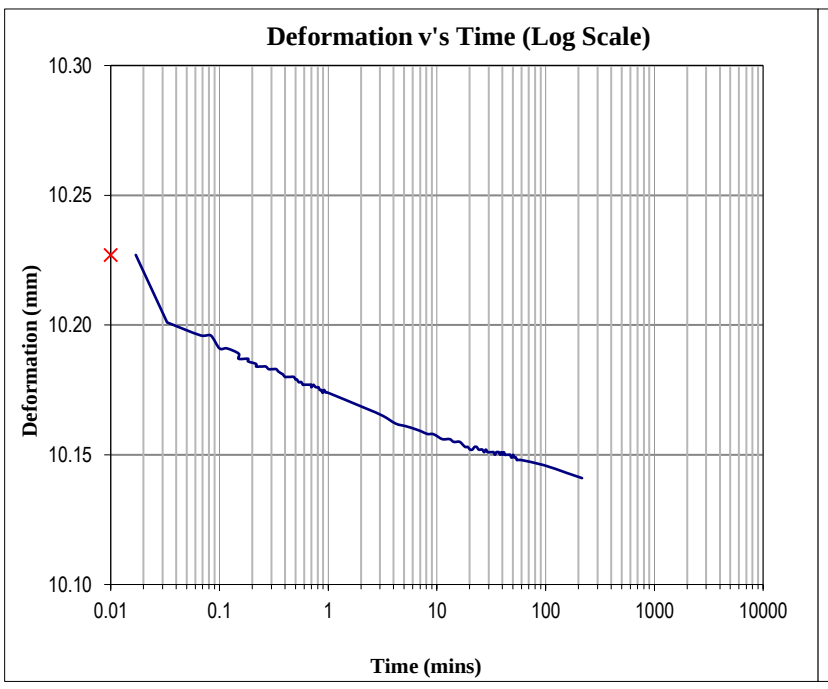
Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017
Client ID:	n/av **Test Hole:** SRT - BH090	**Depth (m):**	2.50 to 2.75
Description:	grey mottled red brown CLAY		

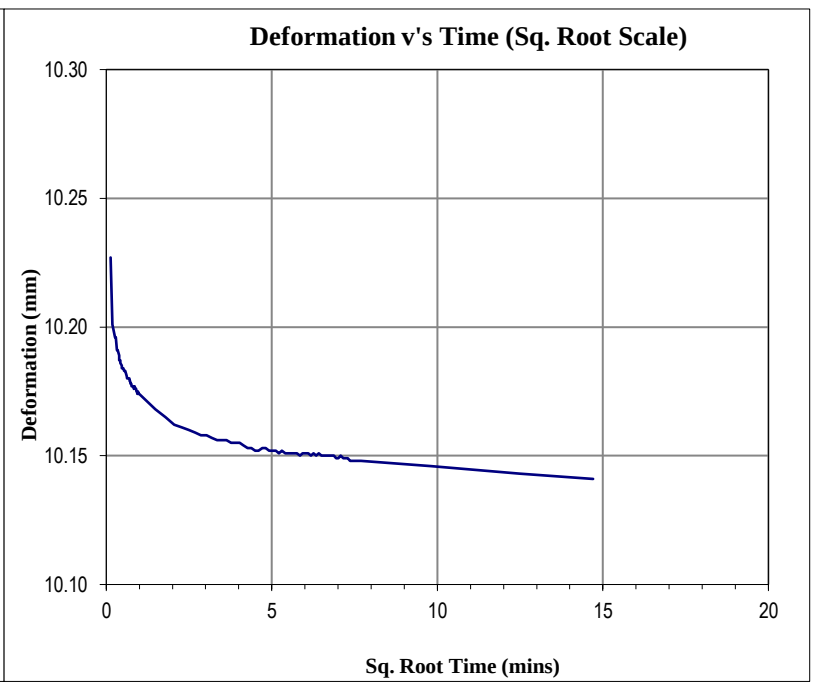
Stage 1 **26 *kPa***





Stage 2 **51 *kPa***





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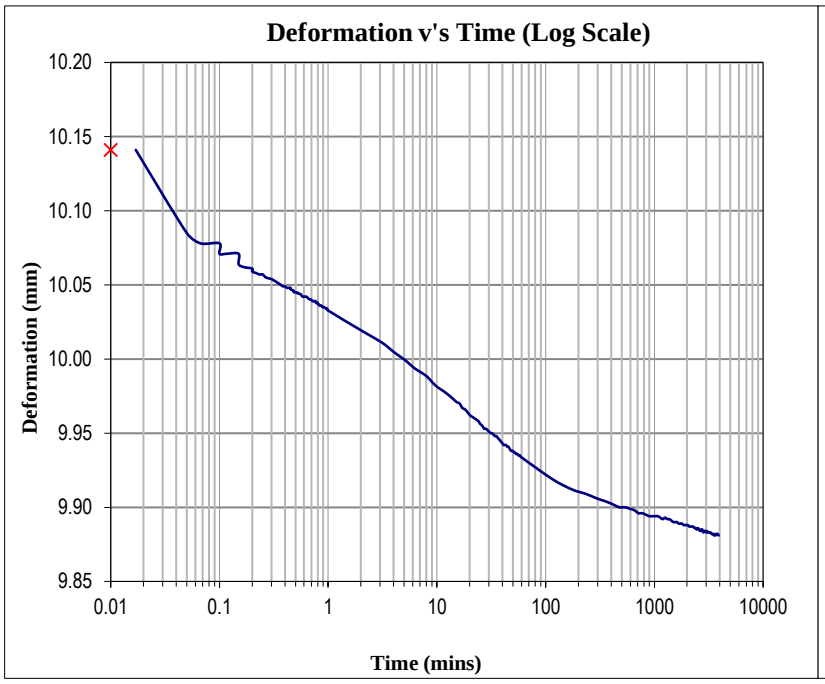
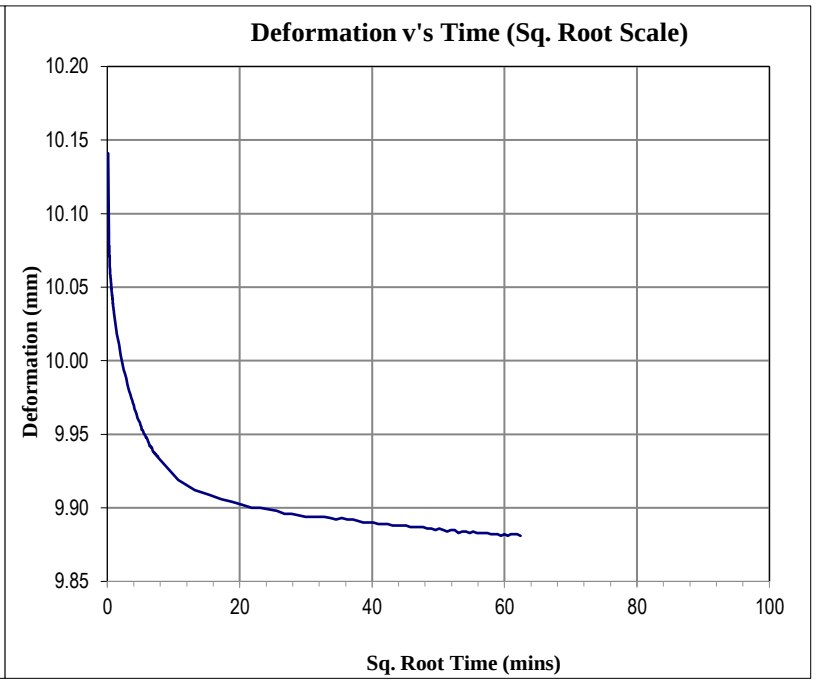
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

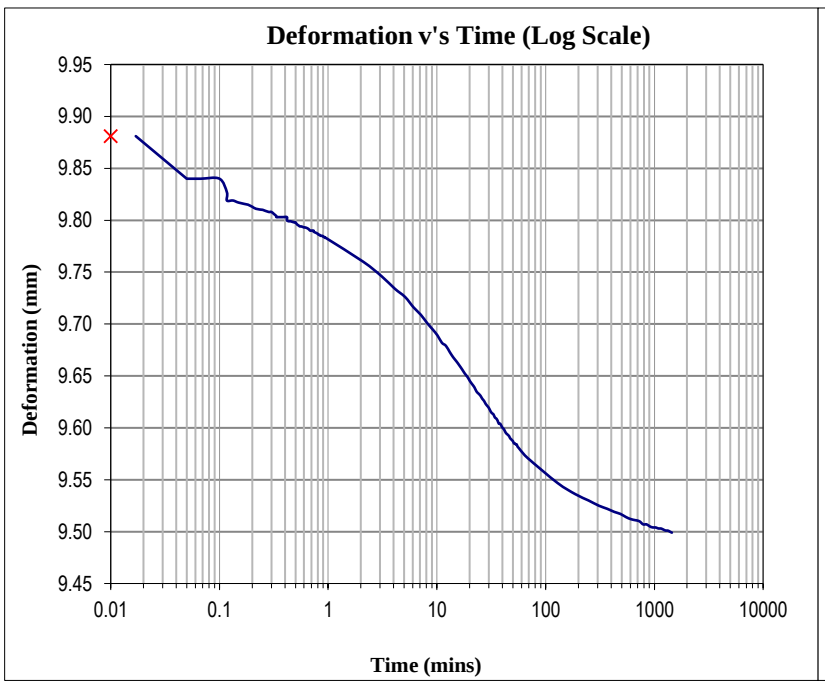
Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017
Client ID:	n/av **Test Hole:** SRT - BH090	**Depth (m):**	2.50 to 2.75
Description:	grey mottled red brown CLAY		

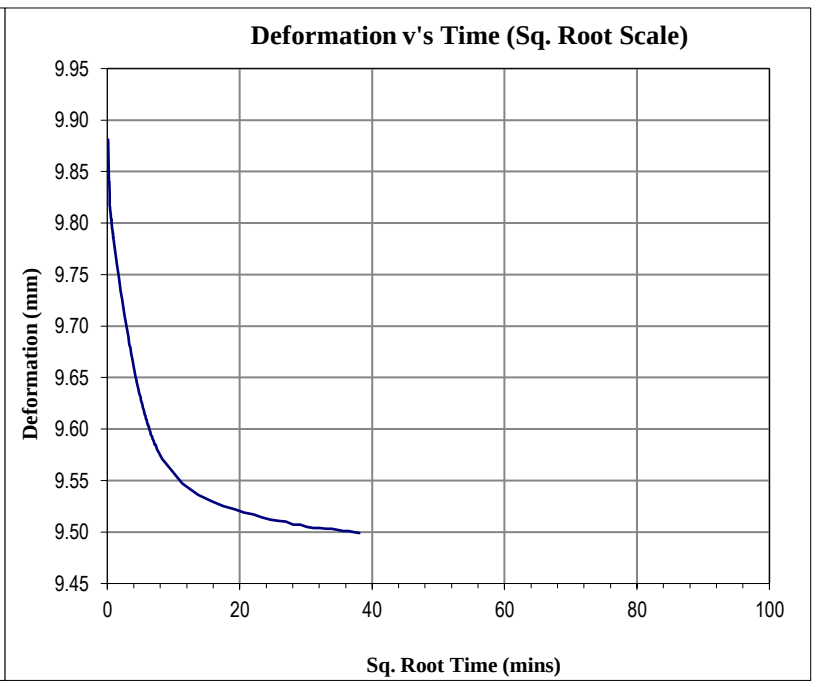
Stage 3 **102 *kPa***





Stage 4 **204 *kPa***





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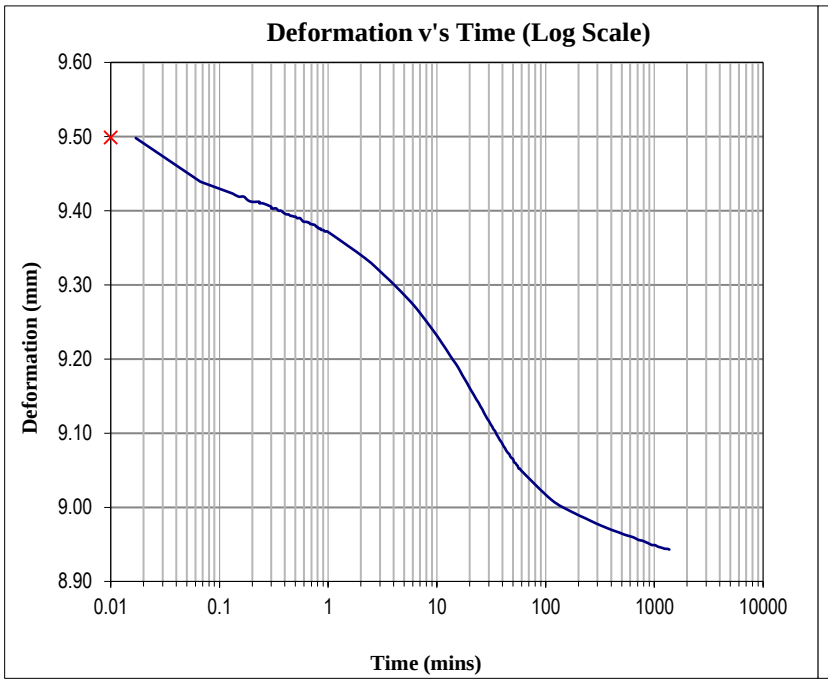
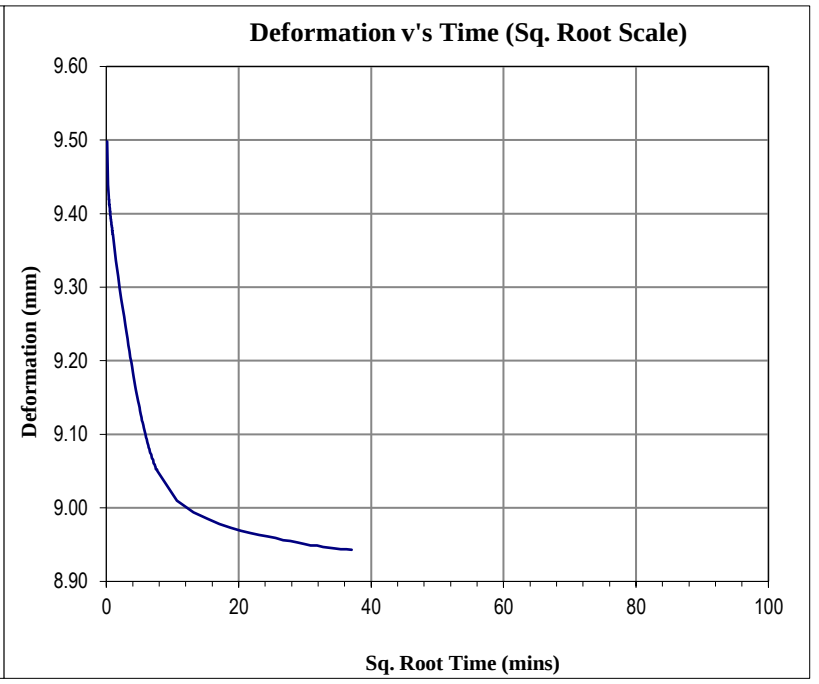
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

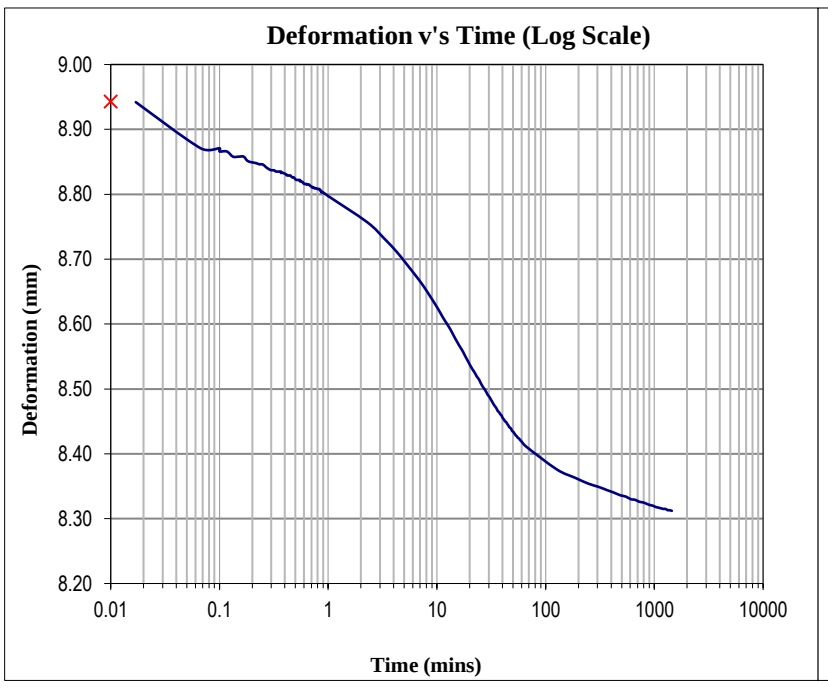
Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017
Client ID:	n/av **Test Hole:** SRT - BH090	**Depth (m):**	2.50 to 2.75
Description:	grey mottled red brown CLAY		

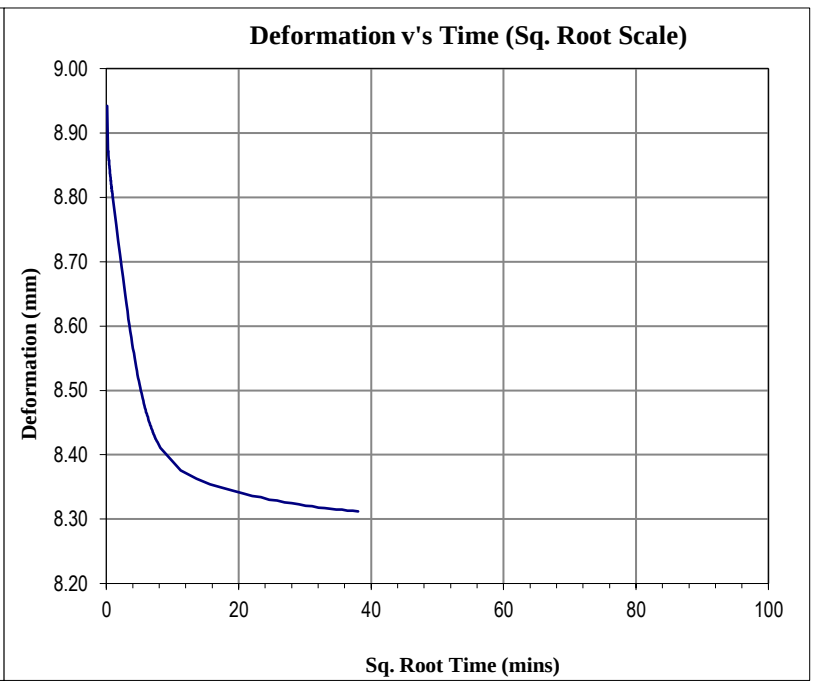
Stage 5 **408 *kPa***





Stage 6 **817 *kPa***





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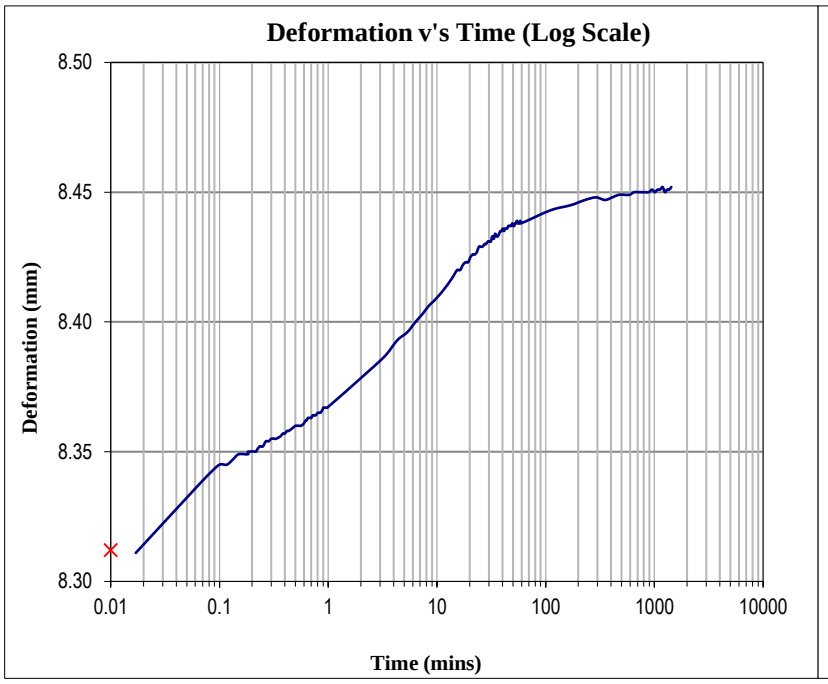
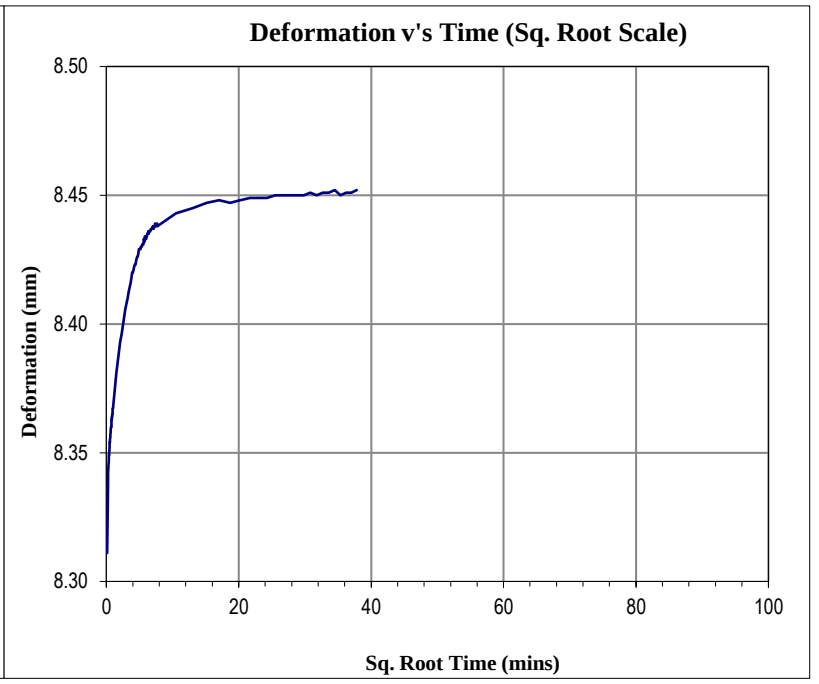
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

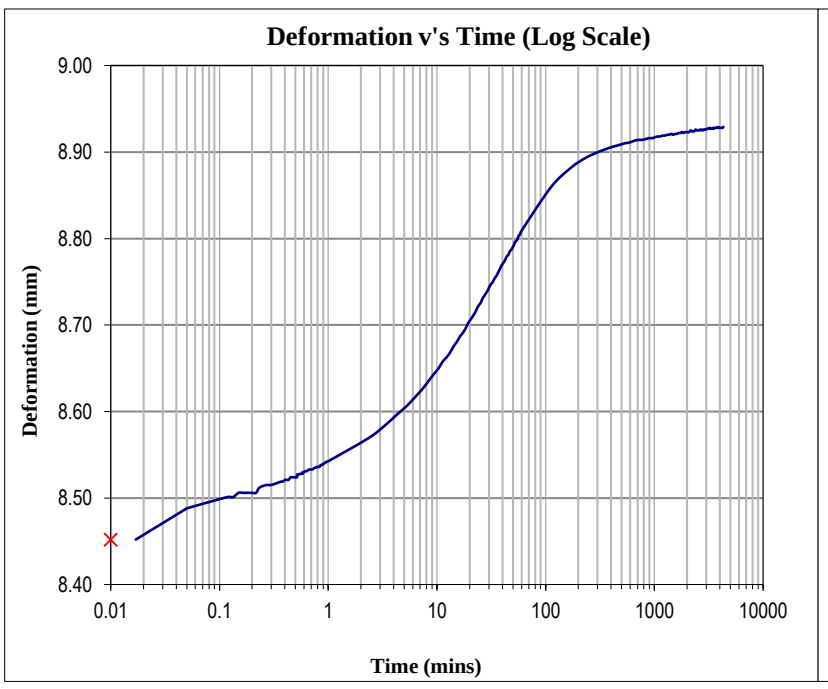
Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017
Client ID:	n/av **Test Hole:** SRT - BH090	**Depth (m):**	2.50 to 2.75
Description:	grey mottled red brown CLAY		

Stage 7 **408 *kPa***





Stage 8 **102 *kPa***



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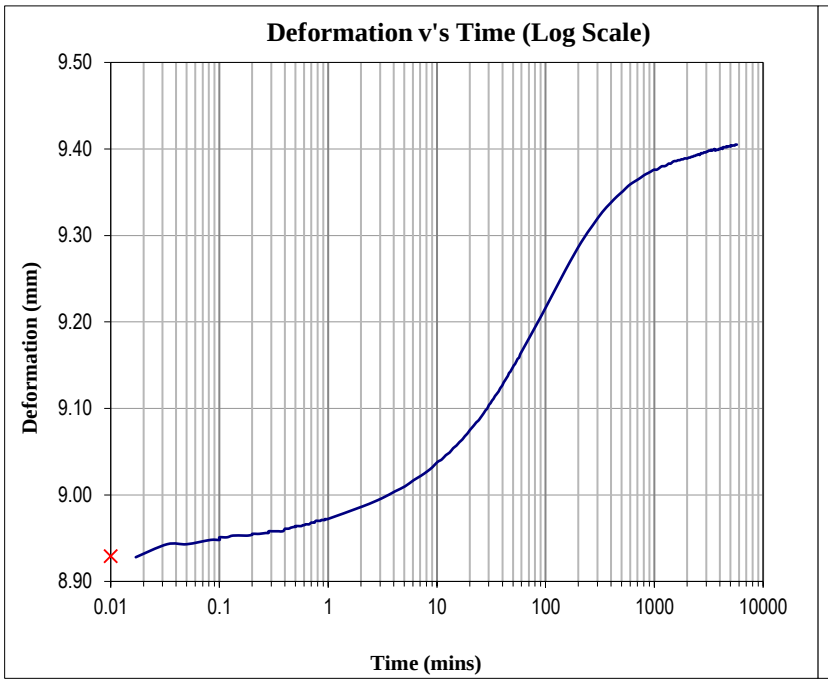
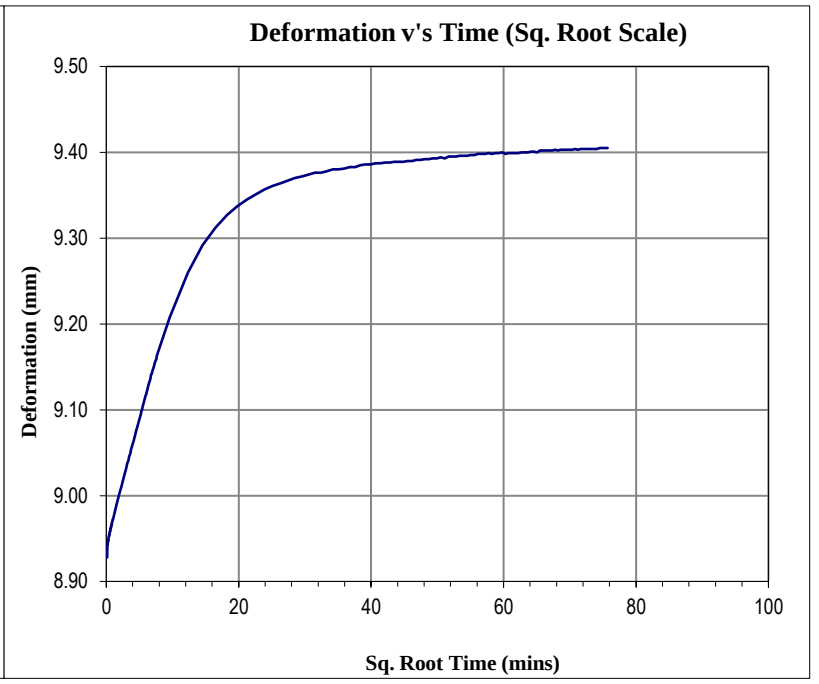
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

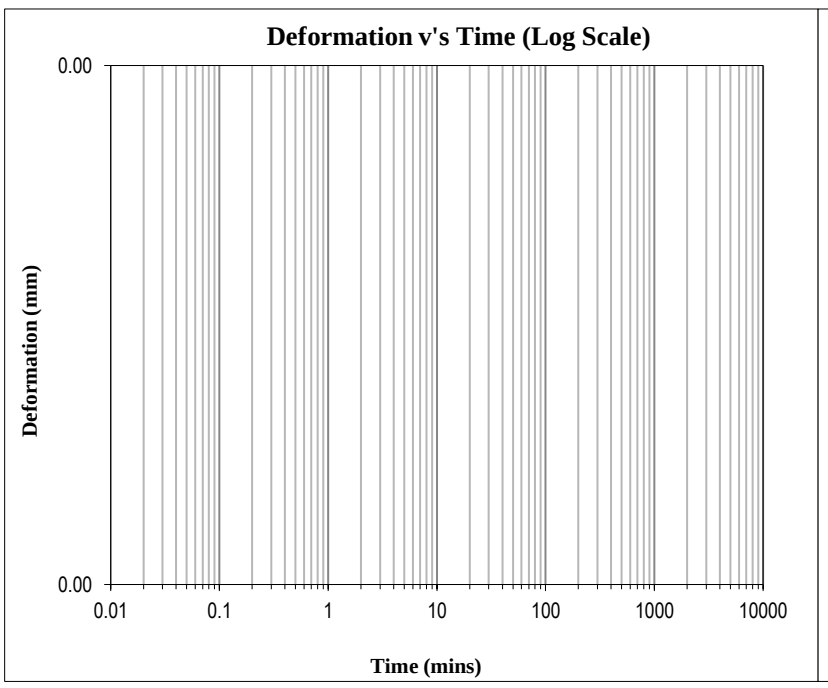
Client :	Transport NSW	**Sample No.:**	SYD17-0494-01
		Job No.:	2125491.52
Project:	Sydney Metro - Sydenham to Bankstown	**Report No.:**	SYD170256
	Marrickville, NSW	**Test Date:**	20.10.2017
Client ID:	n/av **Test Hole:** SRT - BH090	**Depth (m):**	2.50 to 2.75
Description:	grey mottled red brown CLAY		

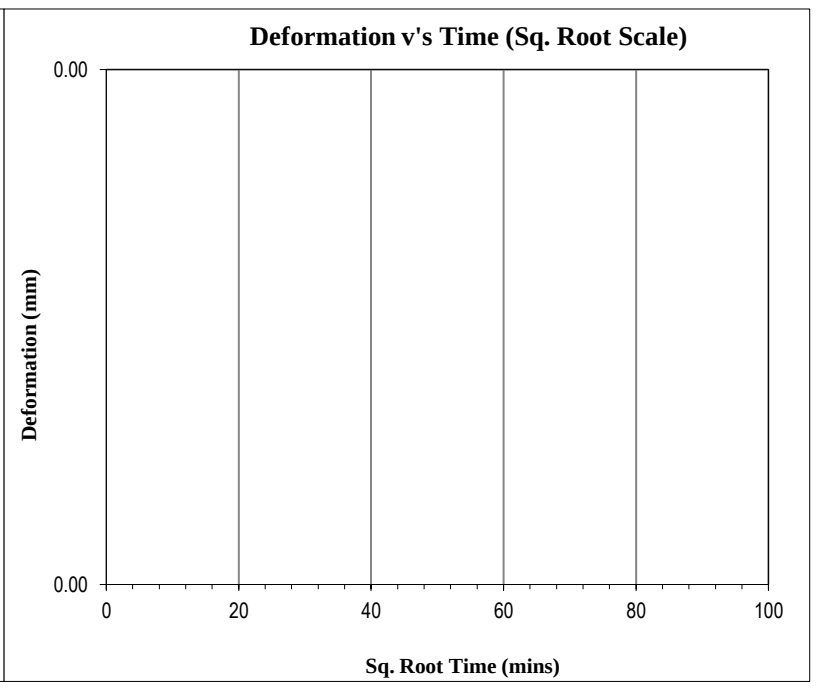
Stage 9 ***26 kPa***





Stage 10 ***kPa***





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Geotechnical Testing Services

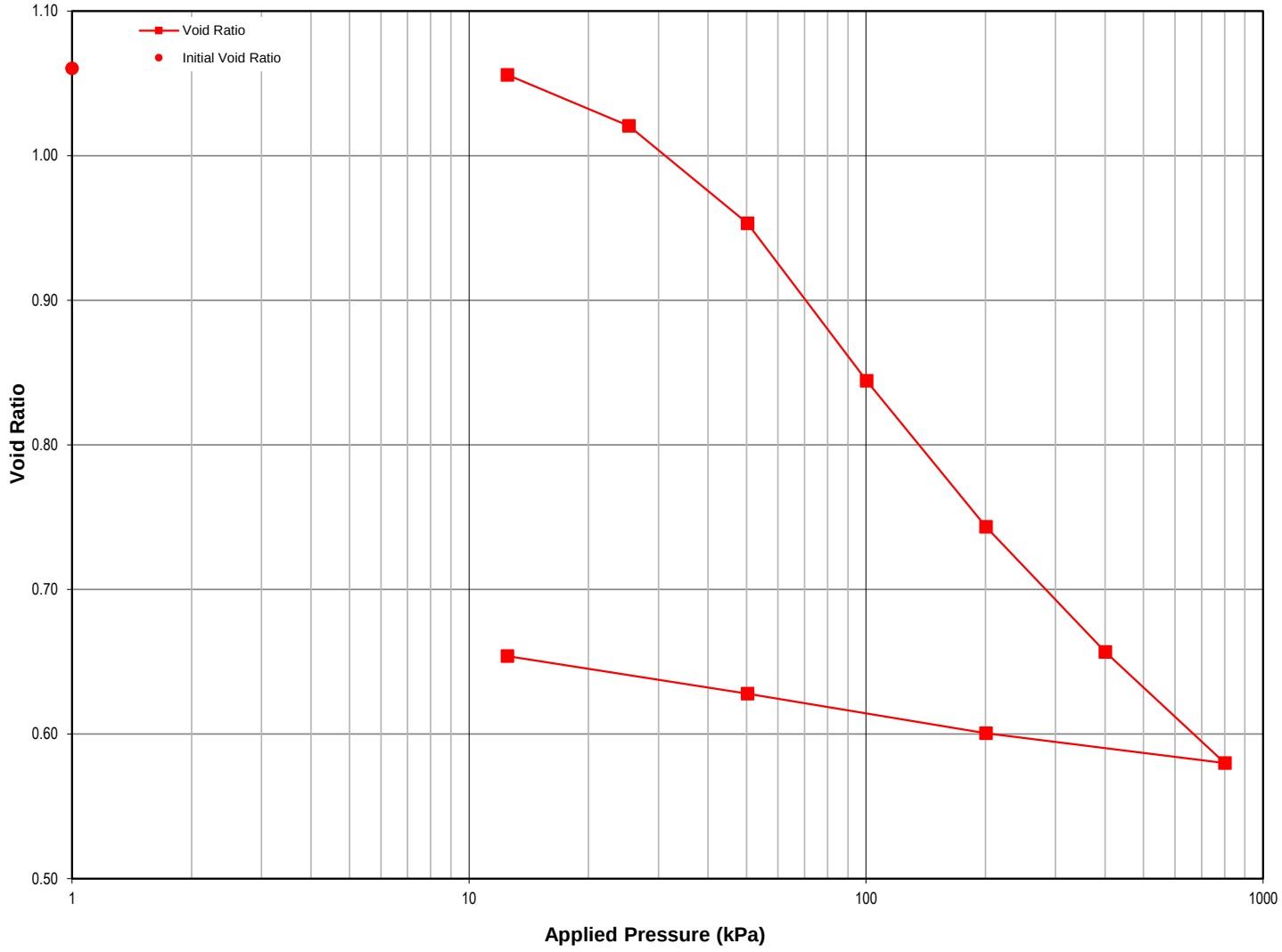
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017

Client ID:	n/av	**Test Hole:**	SRT_BH094	**Depth (m):**	0.60 to 0.90

Description: grey brown CLAY



Initial Dry Density (t/m^3):	1.28	Initial Moisture (%):	28.3	Initial Height (mm):	19.4	Load at inundation (kPa):	12.5
Particle Density (t/m^3):	2.63	Initial Voids Ratio:	1.060	Initial Diameter (mm):	50.0	Initial Degree of Saturation (%):	70.2

Sample Type:	Sample Tube	Remarks:	Ec - 80µS Distilled water used for inundation

Tested By: S. Ihnativ

Checked By: DB

Approved Signatory:

D. Brooke

Date: 15/11/2017

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Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017
Client ID:	n/av	**Test Hole:** SRT_BH094	**Depth (m):** 0.60 to 0.90
Description:	grey brown CLAY		

TEST RESULTS

Stage	Load (kPa)	C_c	C_v (m^2/yr) t_{50}	C_v (m^2/yr) t_{90}	m_v (MPa^{-1})	Void Ratio	% Consolidation
1	12.5	0.026	1.79	-	0.667	1.056	0.2
2	25	0.115	3.31	-	1.343	1.021	1.9
3	50	0.226	17.74	-	1.334	0.953	5.2
4	100	0.363	57.25	-	1.115	0.844	10.5
5	200	0.336	4.33	-	0.547	0.743	15.4
6	401	0.287	1.20	-	0.248	0.657	19.6
7	801	0.256	0.77	-	0.116	0.580	23.3
8	200	0.034	2.46	-	0.022	0.601	22.3
9	50	0.046	0.33	-	0.114	0.628	21.0
10	12.5	0.043	0.06	-	0.421	0.654	19.7

Remarks: Ec - 80µS Distilled water used for inundation

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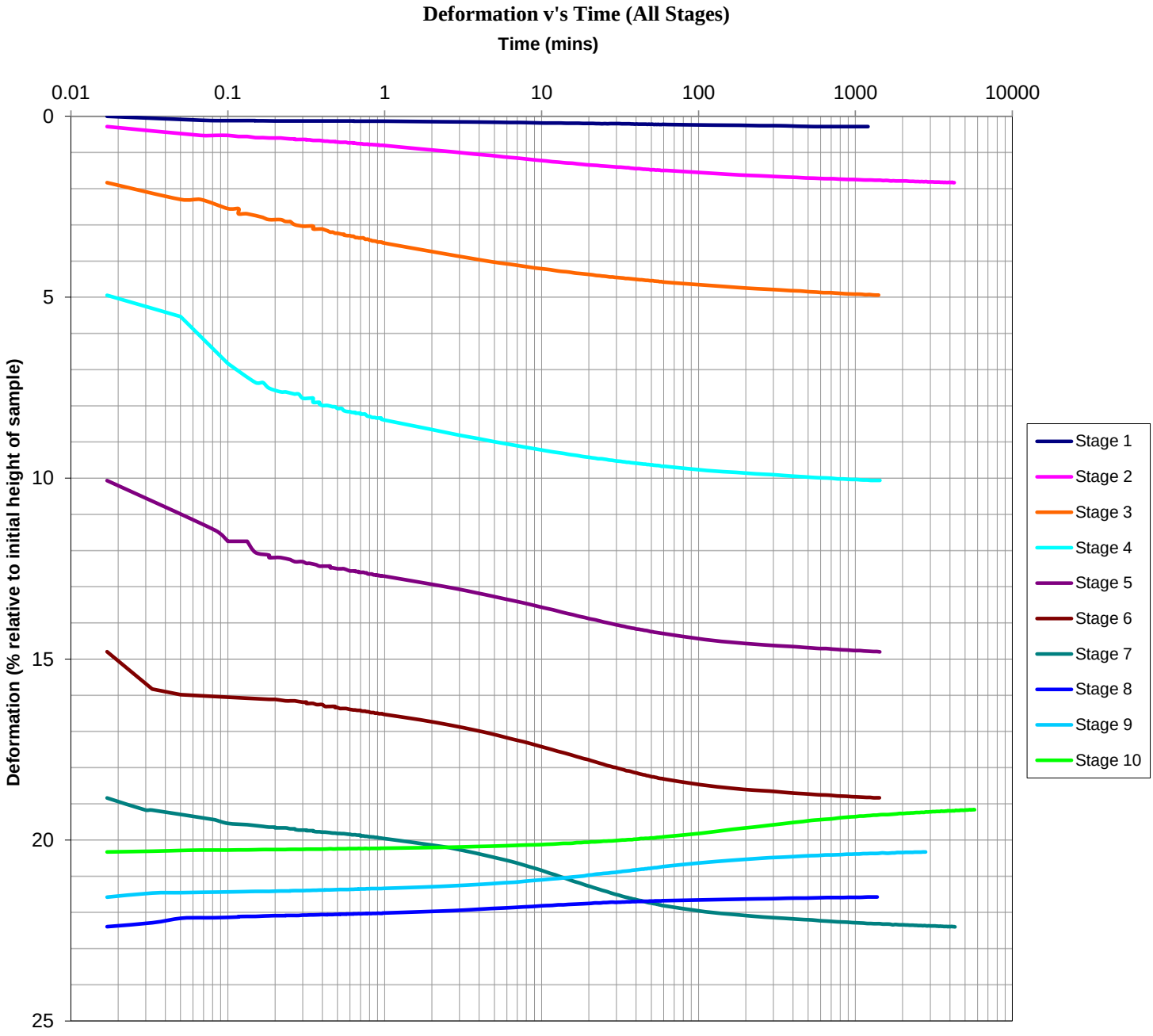
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017
Client ID:	n/av	**Test Hole:** SRT_BH094	**Depth (m):** 0.60 to 0.90
Description:	grey brown CLAY		



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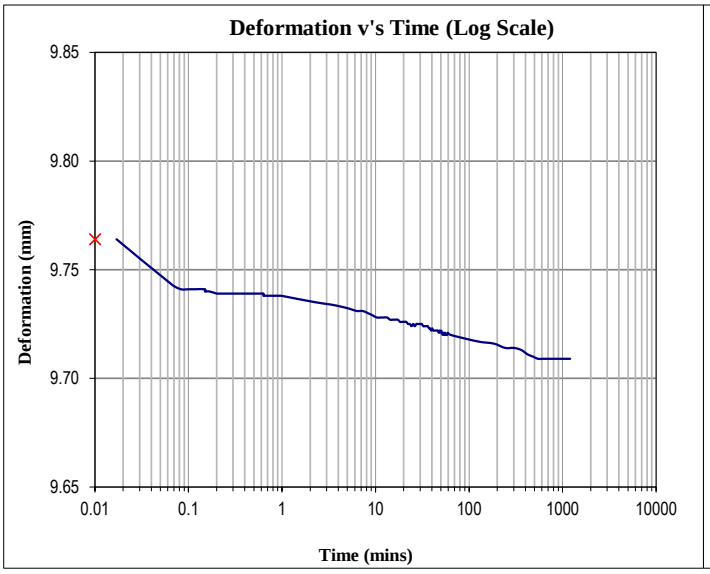
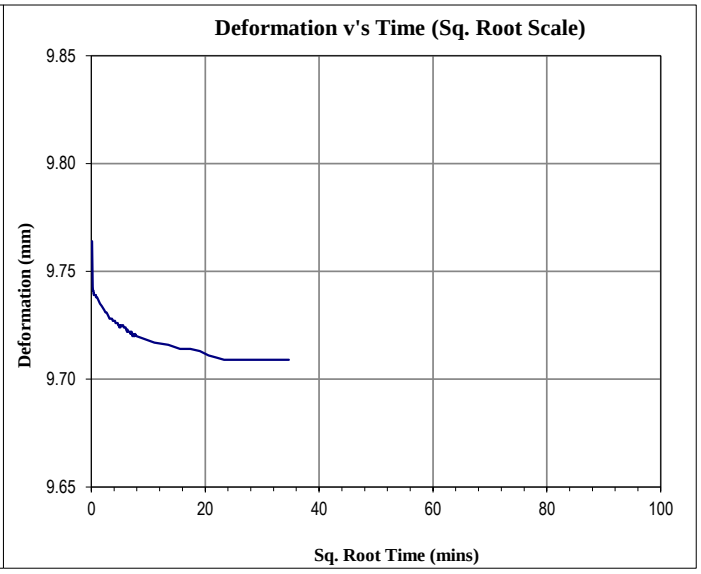
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

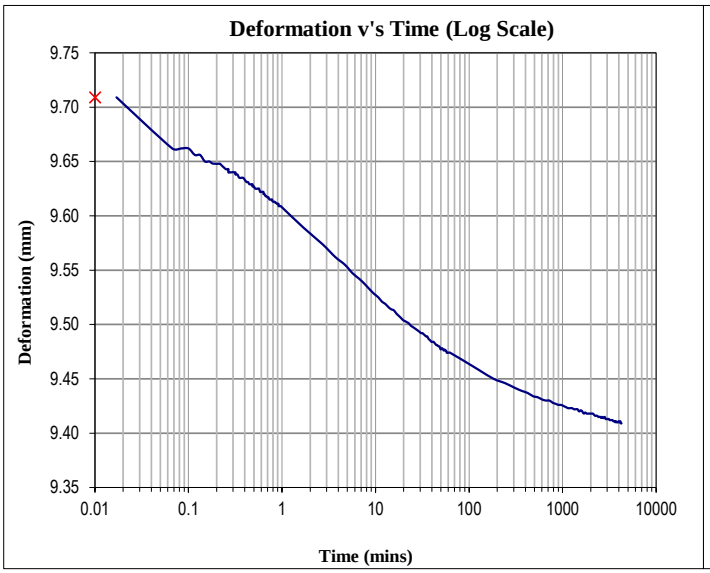
Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017
Client ID:	n/av	**Test Hole:** SRT_BH094	**Depth (m):** 0.60 to 0.90
Description:	grey brown CLAY		

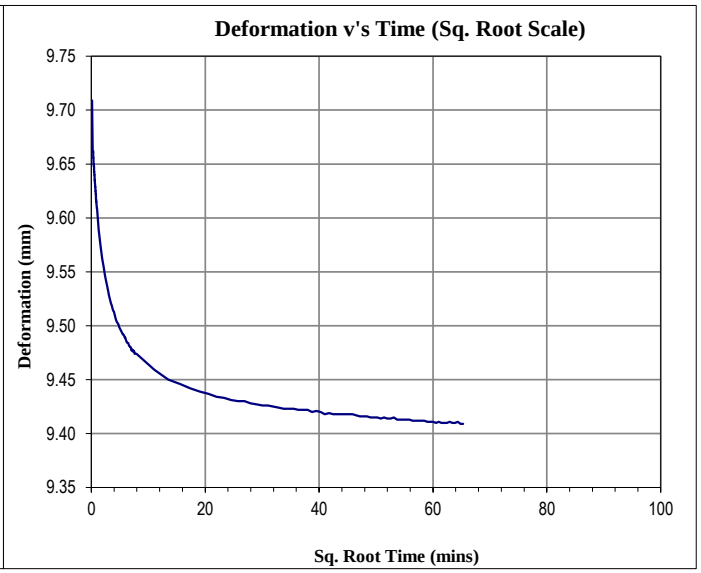
Stage 1 **13 *kPa***





Stage 2 **25 *kPa***





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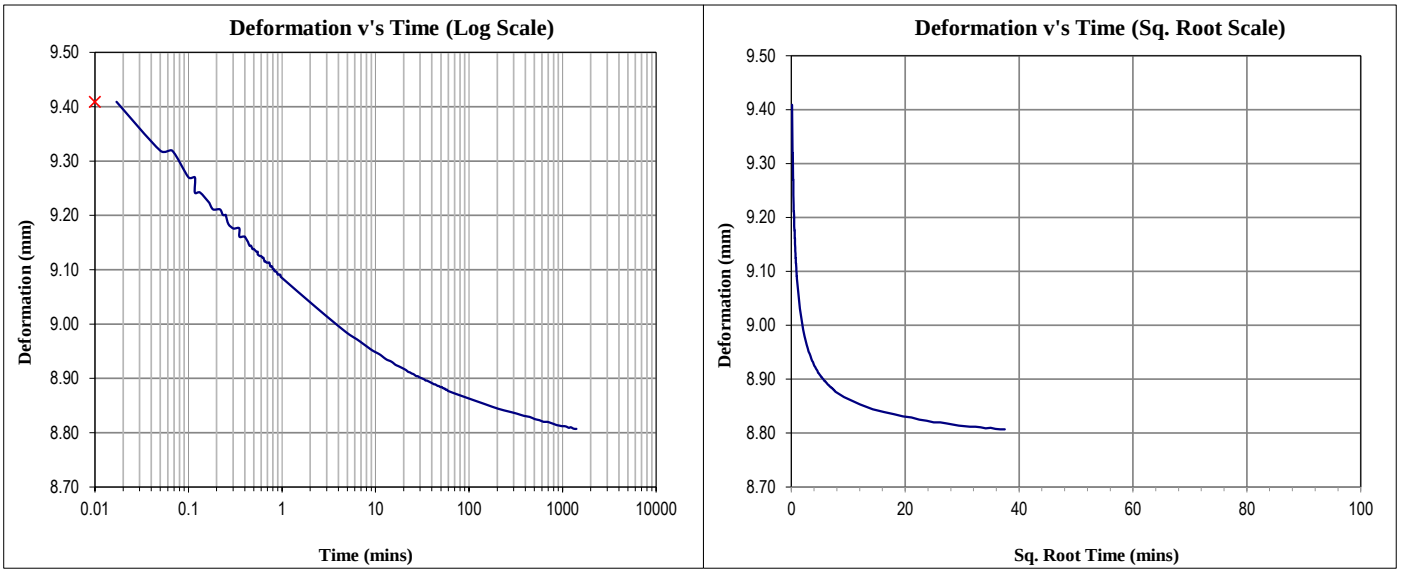
Determination of the one-dimensional consolidation properties of a soil

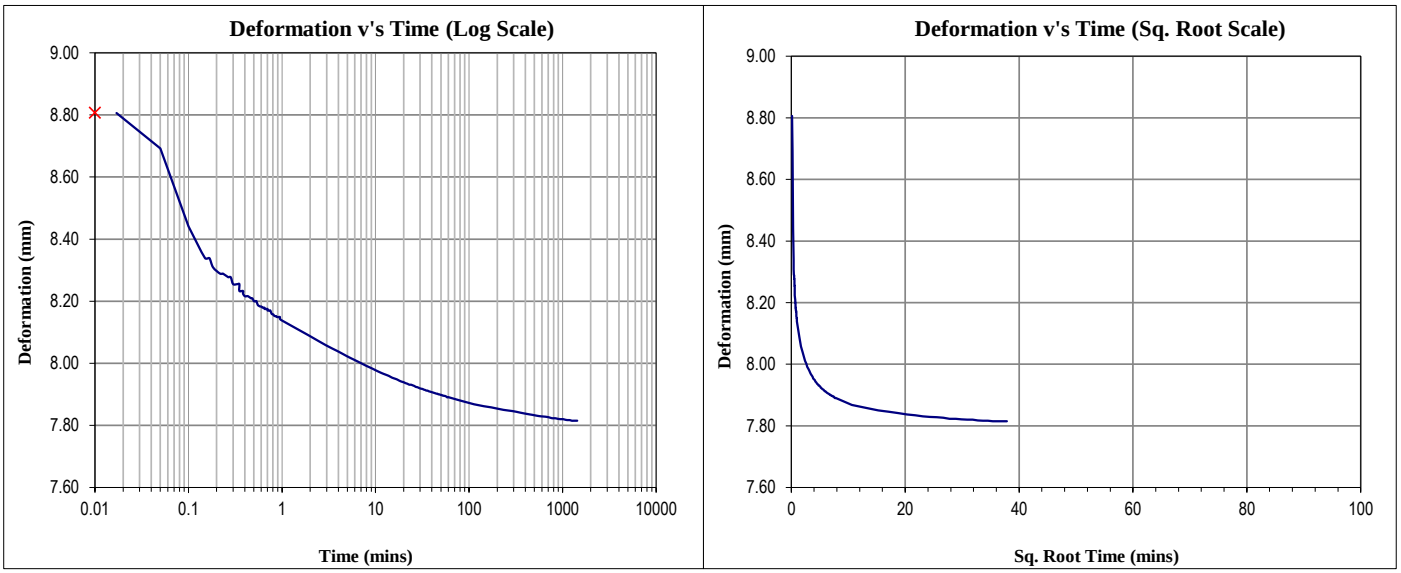
Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017
Client ID:	n/av	**Test Hole:** SRT_BH094	**Depth (m):** 0.60 to 0.90
Description:	grey brown CLAY		

Stage 3 **50 *kPa***



Stage 4 **100 *kPa***



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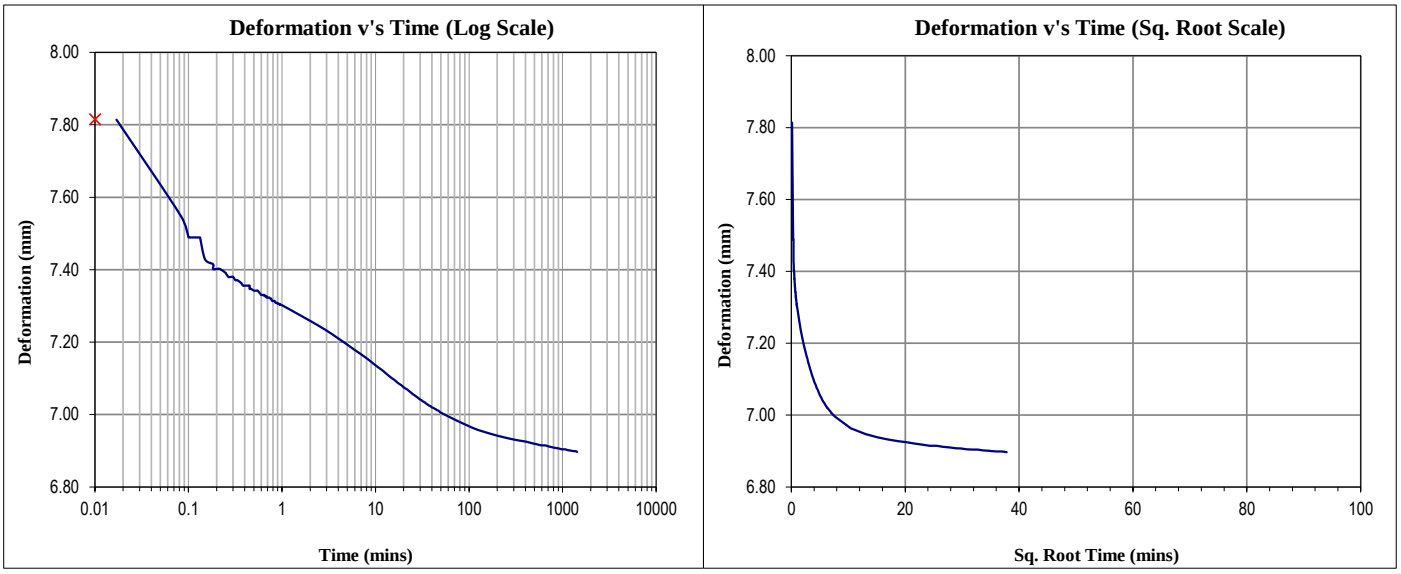
Determination of the one-dimensional consolidation properties of a soil

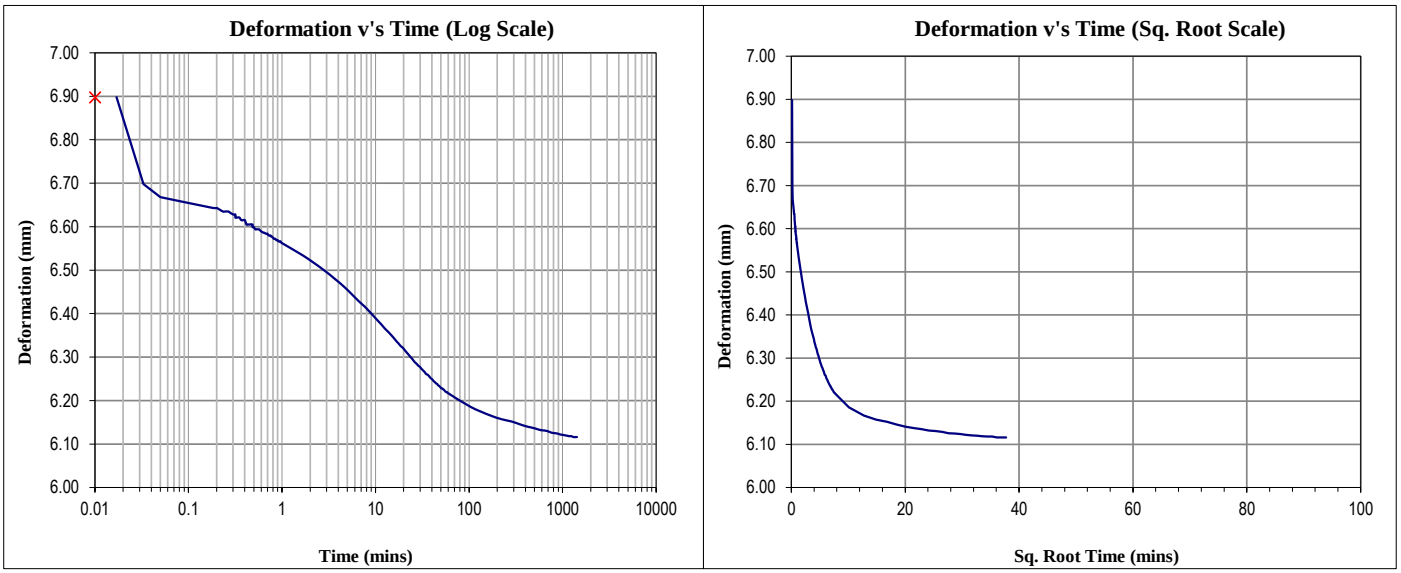
Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017
Client ID:	n/av	**Test Hole:** SRT_BH094	**Depth (m):** 0.60 to 0.90
Description:	grey brown CLAY		

Stage 5 **200 *kPa***



Stage 6 **401 *kPa***



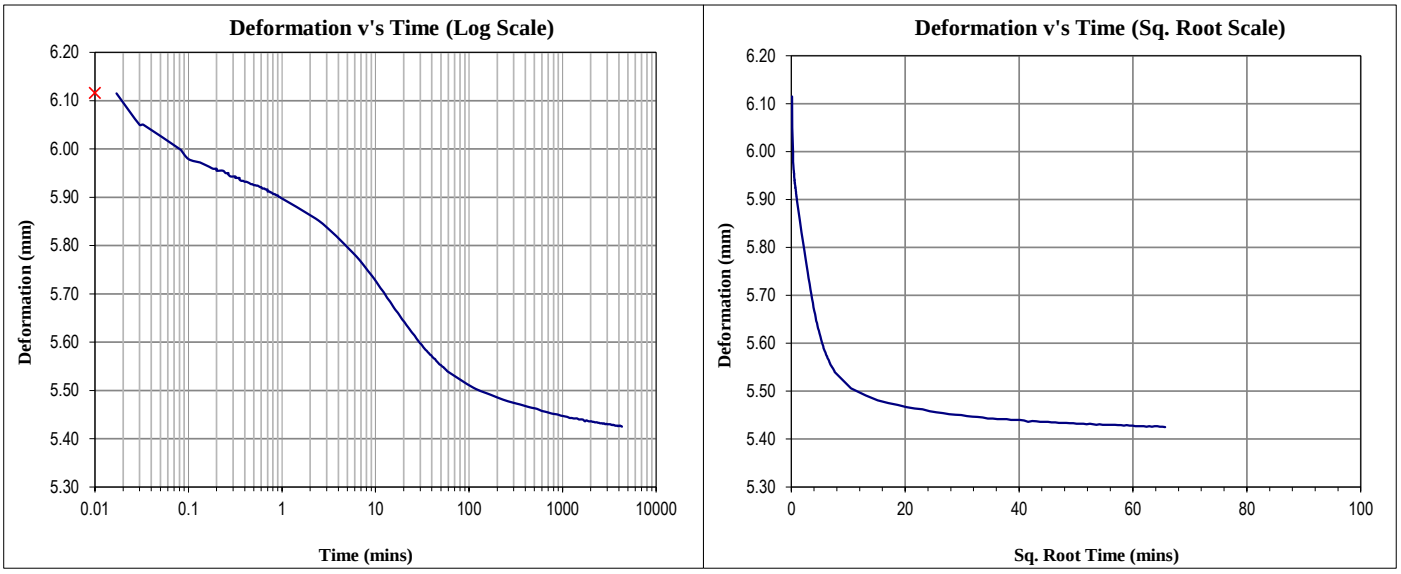
GHD
57 Herbert Street Artarmon, N.S.W. 2064
Telephone: (02) 9462 4700 Fax: (02) 9462 4710
Geotechnical Testing Services

Determination of the one-dimensional consolidation properties of a soil

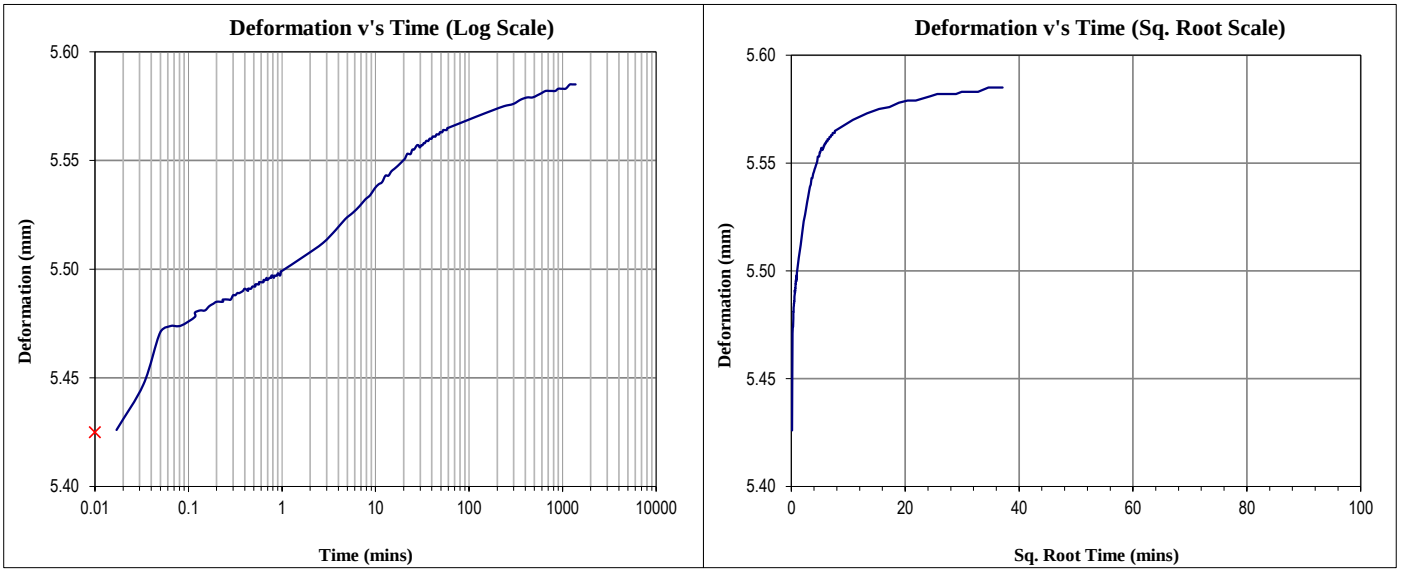
Test Method: AS1289.6.6.1, 3.5.1

Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017
Client ID:	n/av	**Test Hole:** SRT_BH094	**Depth (m):** 0.60 to 0.90
Description:	grey brown CLAY		

Stage 7 **801 *kPa***



Stage 8 **200 *kPa***



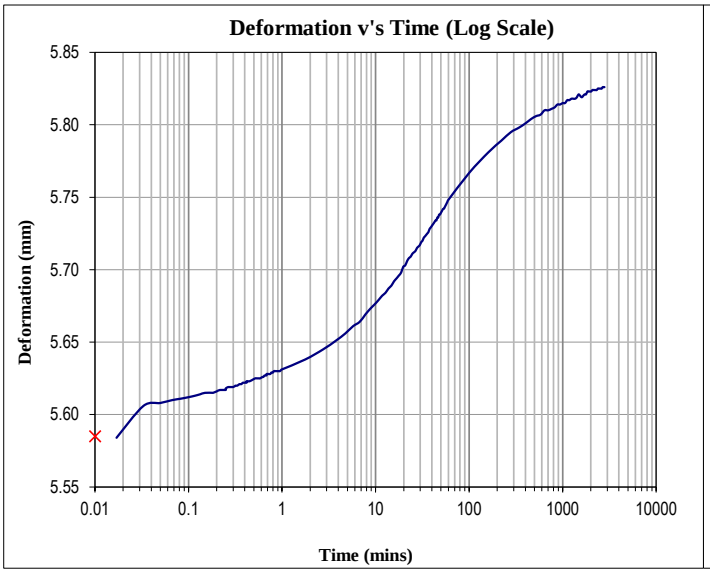
GHD
57 Herbert Street Artarmon, N.S.W. 2064
Telephone: (02) 9462 4700 Fax: (02) 9462 4710
Geotechnical Testing Services

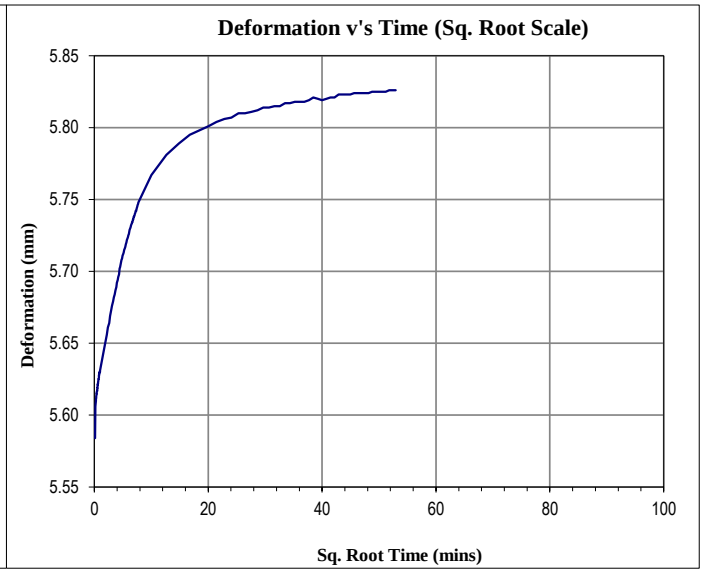
Determination of the one-dimensional consolidation properties of a soil

Test Method: AS1289.6.6.1, 3.5.1

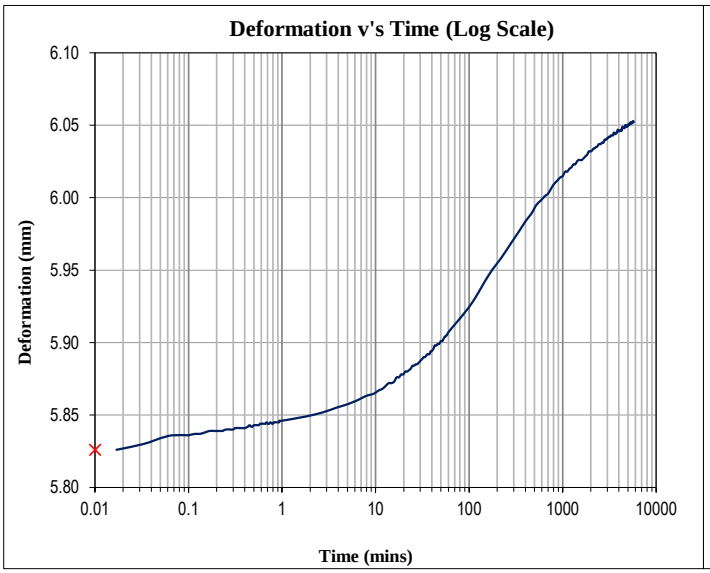
Client :	Transport for NSW	**Sample No.:**	SYD17-0511-01
		Job No.:	2125491.52
Project:	Sydney Metro	**Report No.:**	SYD1702585.1
	Marrickville, NSW	**Test Date:**	26.10.2017
Client ID:	n/av	**Test Hole:** SRT_BH094	**Depth (m):** 0.60 to 0.90
Description:	grey brown CLAY		

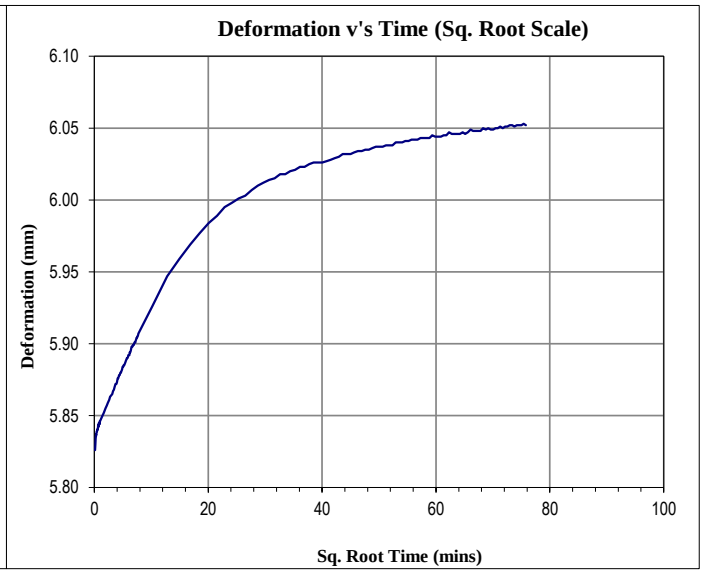
Stage 9 **50 *kPa***





Stage 10 **13 *kPa***





GHD
57 Herbert Street Artarmon, N.S.W. 2064
Telephone: (02) 9462 4700 Fax: (02) 9462 4710
Geotechnical Testing Services

Shear Vane (Pilcon) - Report

Report No: SYD1702526.1

Client:	**Transport for NSW**	Job No:	2125491/52
Project:	**Sydney Metro - Sydenham to Bankstown**	Sample No:	-
Location:	**Marrickville**	Test Hole No:	-
		Depth (m) :	-

Test Procedure: Inhouse GG1209

Sample ID			SHEAR VANE TEST INFORMATION				
BH / TP	**Sample Depth (m)**	**Test Depth (m)**	**Type**	**Rotation Rate (°/min.)**	**Vane Size (mm)**	**Vane Shear Strength, s (kPa)**	**Comments**
SRT_BH090	2.5 - 2.75	2.6	Peak	360	19	**79**	CLAY: grey mottled red brown
			Residual	360	19	**11**	
			Peak				
			Residual				
			Peak				
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			Peak				
			Residual				

NOTES:

Tested By:	SI
Date Tested:	20/10/2017
Checked By:	DB
Date:	6/11/2017

GHD Pty Ltd
Unit 5 / 43 Herbert Street Artarmon, N.S.W. 2064
Telephone: (02) 9462 4700 Fax: (02) 9462 4710

Sydney Laboratory
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Artarmon NSW 2064
email: artarmon@ghd.com.au
web: www.ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax:(02) 9462 4710

Aggregate/Soil Test Report

Report No: SYD1702648
Issue No: 1
This report replaces all previous issues of report no 'SYD1702648'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 23/11/2017

Sample Details

GHD Sample No	SYD17-0516-09
Date Sampled	13/10/2017
Sampled By	Sampled by GHD
BH / TP No.	SRT_LD682
Depth (m)	1.20-1.70
Soil Description	CLAY

Test Results

Description	Method	Result	Limits
Standard Maximum Dry Density (t/m³)	AS 1289.5.1.1	1.76	
Standard Optimum Moisture Content (%)		18.0	
Retained Sieve 19mm (%)		2	
Compactive Effort		Standard	
Date Tested		3/11/2017	
CBR At 2.5mm (%)	AS 1289.6.1.1 - 2014	**1.5**	
CBR At 5.0mm (%)		**1.5**	
Maximum Dry Density (t/m³)		1.76	
Optimum Moisture Content (%)		17.8	
Dry Density before Soaking (t/m³)		1.73	
Density Ratio before Soaking (%)		98.0	
Moisture Content before Soaking (%)		17.6	
Moisture Ratio before Soaking (%)		98.5	
Dry Density after Soaking (t/m³)		1.68	
Density Ratio after Soaking (%)		95.5	
Swell (%)		2.5	
Moisture Content of Top 30mm (%)		24.5	
Moisture Content of Remaining Depth (%)		22.5	
Compactive Effort		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		10	
Oversize Material		Excluded	
Oversize Material (%)		1.6	
Date Tested		17/11/2017	

Comments

N/A

Sydney Laboratory
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email: artarmon@ghd.com.au
web: www.ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax:(02) 9462 4710

Aggregate/Soil Test Report

Report No: SYD1702649
Issue No: 1
This report replaces all previous issues of report no 'SYD1702649'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 22/11/2017

Sample Details

GHD Sample No	SYD17-0516-07
Sampled By	Sampled by GHD
BH / TP No.	SRT-LD683
Depth (m)	1.5-1.95
Soil Description	CLAY

Test Results

Description	Method	Result	Limits
Standard Maximum Dry Density (t/m³)	AS 1289.5.1.1	1.62	
Standard Optimum Moisture Content (%)		22.0	
Retained Sieve 19mm (%)		0	
Compactive Effort		Standard	
Date Tested		3/11/2017	
CBR At 2.5mm (%)	AS 1289.6.1.1 - 2014	**4.5**	
CBR At 5.0mm (%)		**4.0**	
Maximum Dry Density (t/m³)		1.62	
Optimum Moisture Content (%)		22.1	
Dry Density before Soaking (t/m³)		1.59	
Density Ratio before Soaking (%)		98.0	
Moisture Content before Soaking (%)		22.2	
Moisture Ratio before Soaking (%)		100.5	
Dry Density after Soaking (t/m³)		1.57	
Density Ratio after Soaking (%)		96.5	
Swell (%)		1.0	
Moisture Content of Top 30mm (%)		25.1	
Moisture Content of Remaining Depth (%)		24.4	
Compactive Effort		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		10	
Oversize Material (%)		0.0	
Date Tested		17/11/2017	

Comments

N/A

Sydney Laboratory
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email: artarmon@ghd.com.au
web: www.ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax:(02) 9462 4710

Aggregate/Soil Test Report

Report No: SYD1702608
Issue No: 1
This report replaces all previous issues of report no 'SYD1702608'.

Client: Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 22/11/2017

Sample Details

GHD Sample No	SYD17-0516-03
Sampled By	Sampled by GHD
BH / TP No.	SRT-LD681
Depth (m)	0.3-0.8
Soil Description	CLAY: with sand brown with red & orange

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	28.5	
Date Tested		27/10/2017	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	13.5	
Mould Length (mm)		125	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	50	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	28	
Date Tested		6/11/2017	
Standard Maximum Dry Density (t/m³)	AS 1289.5.1.1	1.55	
Standard Optimum Moisture Content (%)		23.0	
Retained Sieve 19mm (%)			
Compactive Effort		Standard	
Date Tested		31/10/2017	
CBR At 2.5mm (%)	AS 1289.6.1.1 - 2014	**5.0**	
CBR At 5.0mm (%)		**4.5**	
Maximum Dry Density (t/m³)		1.55	
Optimum Moisture Content (%)		22.8	
Dry Density before Soaking (t/m³)		1.52	
Density Ratio before Soaking (%)		98.0	
Moisture Content before Soaking (%)		22.8	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.50	
Density Ratio after Soaking (%)		97.0	

Comments

N/A

Sydney Laboratory
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Artarmon NSW 2064
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web: www.ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax:(02) 9462 4710

Aggregate/Soil Test Report

Report No: SYD1702608
Issue No: 1
This report replaces all previous issues of report no 'SYD1702608'.

Client:
Transport For NSW
Sydney Metro - Sydenham to Bankstown
Marrickville NSW

Project: 2125491/52

Accredited for compliance with ISO / IEC 17025 - Testing

NATA Accredited Laboratory Number: 679

Approved Signatory: D.P Brooke (Sydney Laboratory Manager)

Date of Issue: 22/11/2017

Sample Details

GHD Sample No	SYD17-0516-03
Sampled By	Sampled by GHD
BH / TP No.	SRT-LD681
Depth (m)	0.3-0.8
Soil Description	CLAY: with sand brown with red & orange

Test Results

Description	Method	Result	Limits
Swell (%)		1.5	
Moisture Content of Top 30mm (%)		28.2	
Moisture Content of Remaining Depth (%)		27.4	
Compactive Effort		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		10	
Oversize Material (%)		0.0	
Date Tested		17/11/2017	

Comments

N/A

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 177952

Client Details

Client	GHD Pty Ltd
Attention	David Brooke
Address	57-63 Herbert Street, Artarmon, NSW, 2064

Sample Details

Your Reference	**2125491-52**
Number of Samples	2 Soil
Date samples received	18/10/2017
Date completed instructions received	18/10/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	25/10/2017
Date of Issue	23/10/2017

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Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By

David Springer, General Manager

Misc Inorg - Soil			
Our Reference		177952-1	177952-2
Your Reference	UNITS	RCD_G01	RCD_G03
Depth		4.5-4.95	0.5-0.95
Date Sampled		04/10/2017	06/10/2017
Type of sample		Soil	Soil
Date prepared	-	19/10/2017	19/10/2017
Date analysed	-	19/10/2017	19/10/2017
pH 1:5 soil:water	pH Units	8.4	4.4
Electrical Conductivity 1:5 soil:water	µS/cm	970	570
Chloride, Cl 1:5 soil:water	mg/kg	700	600
Sulphate, SO4 1:5 soil:water	mg/kg	720	160

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			19/10/2017	[NT]	[NT]	[NT]	[NT]	19/10/2017	[NT]
Date analysed	-			19/10/2017	[NT]	[NT]	[NT]	[NT]	19/10/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	103	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	104	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	100	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY - Client

22774

ENVIROLAB GROUP - National Phone number 1300 42 43 44

Sydney Lab - Envirolab Services
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Melbourne Lab - Envirolab Services
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Brisbane Lab - Envirolab Services
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Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Lab - Envirolab Services
7 Palmerton Road Windsor Gardens, SA 5087
Ph 0406 350 706 / adelaide@envirolab.com.au

Client: GHD	**Client Project Name / Number / Site etc (ie report title):** 2125491-52
Contact Person: David Brook	**PO No.:**
Project Mgr:	**Envirolab Quote No. :**
Sampler:	**Date results required:**
Address:	**Or choose: standard / same day / 1 day / 2 day / 3 day**
Phone: **Mob:**	*Note: Inform lab in advance if urgent turnaround is required - surcharges apply*
Fax:	**Lab comments:**
Email:	

Sample information					Tests Required													Comments
Envirolab Sample ID	**Client Sample ID or information**	**Depth**	**Date sampled**	**Type of sample**	pH	Cl	SO4	EC										**Provide as much information about the sample as you can**
1	RCD-G01	0.5-0.95	4/10/17	Soil	/	/	/	/										
2	RCD-G03	0.5-0.95	6/10/17	Soil	/	/	/	/										

Envirolab
Ph. (02) 9910 6200
Job No: 177952
Date Received: 18/10/17
Time Received: 11:10
Received by:
Temp: Cool/Ambient
Cooling: Ice/Icepack

Relinquished by (company):	**Received by (company):** ES
Print Name: A.MUNOZ	**Print Name:** LT
Date & Time: 18/10/17	**Date & Time:** 18/10/2017 11:10.
Signature:	**Signature:**

Lab use only:
Samples Received: Cool or Ambient (circle one)
Temperature Received at: 19.0 **(if applicable)**
Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Envirolab Services Pty Ltd
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 179002

Client Details

Client	GHD Pty Ltd
Attention	David Brooke
Address	57-63 Herbert Street, Artarmon, NSW, 2064

Sample Details

Your Reference	**2125491.52**
Number of Samples	5 soil
Date samples received	02/11/2017
Date completed instructions received	02/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	09/11/2017
Date of Issue	07/11/2017

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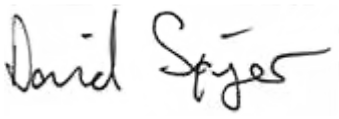
Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By



David Springer, General Manager

Misc Inorg - Soil						
Our Reference		179002-1	179002-2	179002-3	179002-4	179002-5
Your Reference	UNITS	SRT-LD681	SRT-LD681	SRT-LD682	SRT-LD682	SRT-LD683
Depth		0.2-0.5	0.3-0.8	3.5-3.95	0.2-0.7	1.5-2.0
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	03/11/2017	03/11/2017	03/11/2017	03/11/2017	03/11/2017
Date analysed	-	03/11/2017	03/11/2017	03/11/2017	03/11/2017	03/11/2017
pH 1:5 soil:water	pH Units	6.3	5.6	5.0	7.4	[NA]
Electrical Conductivity 1:5 soil:water	µS/cm	52	120	240	280	160
Chloride, Cl 1:5 soil:water	mg/kg	21	25	79	34	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	40	140	240	220	[NA]

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			03/11/2017	1	03/11/2017	03/11/2017		03/11/2017	[NT]
Date analysed	-			03/11/2017	1	03/11/2017	03/11/2017		03/11/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	6.3	6.3	0	103	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	1	52	52	0	100	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	21	28	29	105	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	1	40	45	12	108	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY - Client

22777

ENVIROLAB GROUP - National Phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt Myaree, WA 6154
Ph 08 9317 2505 / lab@mpl.com.au

Melbourne Lab - Envirolab Services
1A Dalmore Drive Scoresby VIC 3179
Ph 03 9763 2500 / melbourne@envirolab.com.au

Brisbane Lab - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Lab - Envirolab Services
7 Palmerton Road Windsor Gardens, SA 5087
Ph 0406 350 706 / adelaide@envirolab.com.au

Client: GHD

Contact Person: David Brooke

Project Mgr:

Sampler:

Address:

Phone: **Mob:**

Fax:

Email:

Client Project Name / Number / Site etc (ie report title): 12549 1.52

PO No.:

Envirolab Quote No. :

Date results required:

Or choose: standard / same day / 1 day / 2 day / 3 day

Note: Inform lab in advance if urgent turnaround is required - surcharges apply

Lab comments:

Sample information

Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample
1	SRT_LD681	0.2-0.5m		Soil
2	SRT_LD681	0.3-0.8m		↓
3	SRT_LD682	3.5-3.95m		
4	SRT_LD682	0.2-0.7m		
5	SRT_LD683	1.5-2.0m		

Tests Required

pH	Cl	SO4	EC												
/	/	/	/												
/	/	/	/												
/	/	/	/												
/	/	/	/												
			/												

Comments

Provide as much information about the sample as you can

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 179002
Date Received: 2/11/17
Time Received: 1025
Received by: MT
Temp: Cool/Ambient 19.6
Cooling: Ice/Icepack
Security: ~~Intact/Broken/None~~

Relinquished by (company):

Print Name:

Date & Time:

Signature:

Received by (company): EGS

Print Name: MT

Date & Time: 2/11/17 10:25

Signature:

Lab use only:

Samples Received: Cool or Ambient (circle one)

Temperature Received at: 19.6 **(if applicable)**

Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Page No:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 179005

Client Details

Client	GHD Pty Ltd
Attention	David Brooke
Address	57-63 Herbert Street, Artarmon, NSW, 2064

Sample Details

Your Reference	**2125491.52**
Number of Samples	2 soil
Date samples received	02/11/2017
Date completed instructions received	02/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

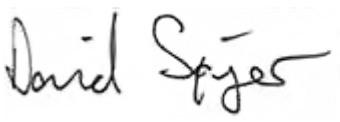
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	09/11/2017
Date of Issue	08/11/2017
Reissue Details	This report replaces R00 created on 07/11/2017 due to: sample ID change. (Client request)

Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By



David Springer, General Manager

Misc Inorg - Soil			
Our Reference		179005-1	179005-2
Your Reference	UNITS	SRT-BH095	SRT-BH095
Depth		0.5-0.95	1.5-1.95
Type of sample		soil	soil
Date prepared	-	03/11/2017	03/11/2017
Date analysed	-	03/11/2017	03/11/2017
pH 1:5 soil:water	pH Units	7.1	6.3
Electrical Conductivity 1:5 soil:water	µS/cm	65	130
Chloride, Cl 1:5 soil:water	mg/kg	10	<10
Sulphate, SO4 1:5 soil:water	mg/kg	61	170

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			03/11/2017	[NT]	[NT]	[NT]	[NT]	03/11/2017	[NT]
Date analysed	-			03/11/2017	[NT]	[NT]	[NT]	[NT]	03/11/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	103	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	105	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

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Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY - Client

22776

ENVIROLAB GROUP - National Phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt Myaree, WA 6154
Ph 08 9317 2505 / lab@mpl.com.au

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Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Lab - Envirolab Services
7 Palmerton Road Windsor Gardens, SA 5087
Ph 0406 350 706 / adelaide@envirolab.com.au

Client: GHD
Contact Person: David Brooke
Project Mgr:
Sampler:
Address:
Phone: **Mob:**
Fax:
Email:

Client Project Name / Number / Site etc (ie report title): 2125491.52
PO No.:
Envirolab Quote No. :
Date results required:
Or choose: standard / same day / 1 day / 2 day / 3 day
Note: Inform lab in advance if urgent turnaround is required - surcharges apply
Lab comments:

Sample information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	pH	CL	SO4	EC											Provide as much information about the sample as you can
1	RCD_GO6	0.5-0.95m			/	/	/	/											
2	RCD_GO6	1.5-1.95m			/	/	/	/											

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 179005
Date Received: 2/11/17
Time Received: 10:15
Received by: MT
Temp: Cool/Ambient 19.2
Cooling: Ice/Icepack
Security: ~~Intact/Broken/None~~

Relinquished by (company):
Print Name: A.MUNOZ
Date & Time: 1/11/17
Signature:

Received by (company): EA
Print Name: MT
Date & Time: 2/11/17 10:15
Signature:

Lab use only:
Samples Received: Cool or Ambient (circle one)
Temperature Received at: 19.2 **(if applicable)**
Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 179742

Client Details

Client	GHD Pty Ltd
Attention	David Brooke
Address	57-63 Herbert Street, Artarmon, NSW, 2064

Sample Details

Your Reference	**2125491.52**
Number of Samples	1 soil
Date samples received	14/11/2017
Date completed instructions received	14/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

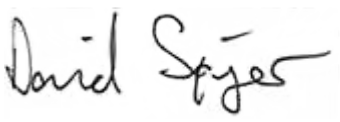
Date results requested by	21/11/2017
Date of Issue	16/11/2017

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By



David Springer, General Manager

Misc Inorg - Soil		
Our Reference		179742-1
Your Reference	UNITS	SRT_LD681
Depth		2.0-2.45
Date Sampled		13/10/2017
Type of sample		soil
Date prepared	-	15/11/2017
Date analysed	-	15/11/2017
pH 1:5 soil:water	pH Units	4.8
Electrical Conductivity 1:5 soil:water	µS/cm	280
Chloride, Cl 1:5 soil:water	mg/kg	150
Sulphate, SO4 1:5 soil:water	mg/kg	130

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			15/11/2017	[NT]	[NT]	[NT]	[NT]	15/11/2017	[NT]
Date analysed	-			15/11/2017	[NT]	[NT]	[NT]	[NT]	15/11/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	92	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	97	[NT]

Result Definitions

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PQL	Practical Quantitation Limit
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RPD	Relative Percent Difference
LCS	Laboratory Control Sample
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CHAIN OF CUSTODY - Client

22781

ENVIROLAB GROUP - National Phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt Myaree, WA 6154
Ph 08 9317 2505 / lab@mpl.com.au

Melbourne Lab - Envirolab Services
1A Dalmore Drive Scoresby VIC 3179
Ph 03 9763 2500 / melbourne@envirolab.com.au

Brisbane Lab - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Lab - Envirolab Services
7 Palmerton Road Windsor Gardens, SA 5087
Ph 0406 350 706 / adelaide@envirolab.com.au

Client: GHD	**Client Project Name / Number / Site etc (ie report title):** 21-25491.52
Contact Person: David Brook	**PO No.:**
Project Mgr:	**Envirolab Quote No. :**
Sampler:	**Date results required:**
Address:	**Or choose: standard / same day / 1 day / 2 day / 3 day**
	Note: Inform lab in advance if urgent turnaround is required - surcharges apply
Phone: **Mob:**	**Lab comments:**
Fax:	
Email:	

Sample information | **Tests Required** | **Comments**

Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	pH	CL	SO4	EC											Comments
1	SRT_LD681	2.0-2.45	13/10/17	SOIL	/	/	/	/											Provide as much information about the sample as you can

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 179792
Date Received: 14/11/17
Time Received: 10:45
Received by: JE
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by (company): GHD	**Received by (company):** ELS
Print Name: A.MUNRO	**Print Name:** JE
Date & Time: 14/11/17	**Date & Time:** 14.11.17 10:45
Signature:	**Signature:**

Lab use only:
Samples Received: Cool or Ambient (circle one)
Temperature Received at: 22.6°C **(if applicable)**
Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Sydney Laboratory
Unit 5 / 43 Herbert St
Artarmon NSW 2064
email: artarmon@ghd.com.au
web: ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax: (02) 9462 4710

CLIENTS | PEOPLE | PERFORMANCE

GHD GEOTECHNICS

Report No: SYD1702956
Issue No: 1

Point Load Strength Index - Report

Client:	Transport for New South Wales
Project:	Sydney Metro
Location:	Marrickville
Job No.:	21-25491-52
Borehole / Sample No.:	**SRT_BH090**
Test Method:	RTA Test Method T223

Authorised Signatory: D. Brooke

Date of issue : 26/10/17

Test Results

Depth (m)	Test Type (D,A,I)	Dimensions				Results				Sample Description		
		D (mm)	L (mm)	W (mm)	De (mm)	Load, P (kN)	Failure Mode (1,2,3..)	Is (MPa)	Is_{50} (MPa)	Rock Type	Structure	Moisture
7.90	A	40.0		52.0	51.5	0.21	2	0.08	**0.08**	ST	BE	As Drilled
8.85	D	52.0	40.0	52.0	52.0	0.87	2	0.32	**0.33**	SS	BE	As Drilled
8.87	A	40.0		52.0	51.5	2.26	2	0.85	**0.86**	SS	BE	As Drilled
10.55	D	52.0	35.0	52.0	52.0	1.25	2	0.46	**0.47**	SS	BE	As Drilled
10.57	A	35.0		52.0	48.1	3.8	2	1.64	**1.61**	SS	BE	As Drilled
9.56	D	52.0	32.0	52.0	52.0	1.31	2	0.48	**0.49**	SS	BE	As Drilled
9.58	A	32.0		52.0	46.0	2.25	1	1.06	**1.02**	SS	BE	As Drilled
11.05	D	52.0	52.0	52.0	52.0	1.34	2	0.50	**0.50**	SS	BE	As Drilled
11.08	A	52.0		52.0	58.7	2.87	1	0.83	**0.90**	SS	BE	As Drilled
12.10	D	52.0	51.0	52.0	52.0	3.51	2	1.30	**1.32**	SS	BE	As Drilled
12.07	A	51.0		52.0	58.1	4.09	1	1.21	**1.30**	SS	BE	As Drilled
14.10	D	52.0	52.0	52.0	52.0	3.87	2	1.43	**1.46**	SS	BE	As Drilled
14.01	A	52.0		52.0	58.7	6.33	1	1.84	**1.98**	SS	BE	As Drilled

Comments (if applicable):

MOISTURE
(W) Wet
(M) Moist
(D) Dry
(AD) As Drilled
(AR) As Received

ROCK TYPE
(SS) Sandstone
(ST) Siltstone
(SH) Shale
(G) Granitic
(MSS) Meta Sandtone
(MST) Meta Siltstone

STRUCTRUE
(MA) Massive
(BE) Bedded
(IB) Interbedded
(LA) Laminated
(CR) Crystalline

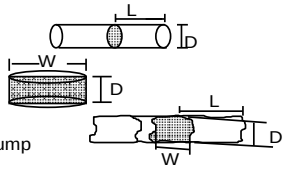
FAILURE MODE
1 = Fracture through fabric oblique to bedding
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by pre-existing:
(J) Joint plane, (M) Microfracture, (F) Foliation, (V) Vein
5 = Partial fracture or chip (Invalid result)

TEST TYPES

D = Diametral — L > 0.5 D

A = Axial — 0.3W < D < W

I = Irregular Lump — 0.3W < D < W



Time Since Sampling = 0 Days

Storage:

[X] CORE BOX [ ] UNDER COVER
[ ] WRAPPED [ ] OPEN AIR
[ ] UNWRAPPED [ ] UNKNOWN

Sampled By:	GHD
Date Sampled:	5/10/2017
Tested By:	KH
Date Tested:	05/10/2017

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web: ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax: (02) 9462 4710

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GHD GEOTECHNICS

Report No: SYD1702956.1
Issue No: 1

Point Load Strength Index - Report

Client:	Transport for New South Wales
Project:	Sydney Metro
Location:	Marrickville
Job No.:	21-25491-52
Borehole / Sample No.:	**SRT_BH091**
Test Method:	RTA Test Method T223

Authorised Signatory: D. Brooke

Date of issue : 26/10/17

Test Results

Depth (m)	Test Type (D,A,I)	Dimensions				Results				Sample Description		
		D (mm)	L (mm)	W (mm)	De (mm)	Load, P (kN)	Failure Mode (1,2,3..)	Is (MPa)	Is_{50} (MPa)	Rock Type	Structure	Moisture
8.90	D	52.0	40.0		52.0	0.06	2	0.02	**0.02**	SS	BE	As Drilled
8.93	A	25.0		50.0	39.9	0.95	1	0.60	**0.54**	SS	BE	As Drilled
10.50	D	52.0	40.0		52.0	0.47	2	0.17	**0.18**	SS	BE	As Drilled
10.53	A	40.0		52.0	51.5	2.23	1	0.84	**0.85**	SS	BE	As Drilled
12.35	D	52.0	42.0		52.0	0.5	2	0.18	**0.19**	SS	BE	As Drilled
12.38	A	42.0		52.0	52.7	1.23	1	0.44	**0.45**	SS	BE	As Drilled
13.20	D	52.0	45.0		52.0	0.8	2	0.30	**0.30**	SS	BE	As Drilled
13.17	A	45.0		52.0	54.6	2.5	1	0.84	**0.87**	SS	BE	As Drilled
14.15	D	52.0	47.0		52.0	1.03	2	0.38	**0.39**	SS	BE	As Drilled
14.12	A	47.0		52.0	55.8	2.69	1	0.86	**0.91**	SS	BE	As Drilled
15.10	D	52.0	49.0		52.0	0.13	2	0.05	**0.05**	SS	BE	As Drilled
15.05	A	49.0		52.0	57.0	2.72	1	0.84	**0.89**	SS	BE	As Drilled
16.60	D	52.0	44.0		52.0	1.94	2	0.72	**0.73**	SS	BE	As Drilled
16.57	A	44.0		52.0	54.0	1.92	1	0.66	**0.68**	SS	BE	As Drilled

Comments (if applicable):

MOISTURE
(W) Wet
(M) Moist
(D) Dry
(AD) As Drilled
(AR) As Received

ROCK TYPE
(SS) Sandstone
(ST) Siltstone
(SH) Shale
(G) Granitic
(MSS) Meta Sandtone
(MST) Meta Siltstone

STRUCTRUE
(MA) Massive
(BE) Bedded
(IB) Interbedded
(LA) Laminated
(CR) Crystalline

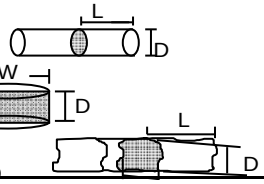
FAILURE MODE
1 = Fracture through fabric oblique to bedding
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by pre-existing:
(J) Joint plane, (M) Microfracture, (F) Foliation, (V) Vein
5 = Partial fracture or chip (Invalid result)

TEST TYPES

D = Diametral

A = Axial

I = Irregular Lump



L > 0.5 D

0.3W < D < W

0.3W < D < W

Time Since Sampling = 0 Days

Storage:

[X] CORE BOX [ ] UNDER COVER

[ ] WRAPPED [ ] OPEN AIR

[ ] UNWRAPPED [ ] UNKNOWN

Sampled By:	GHD
Date Sampled:	09/10/2017
Tested By:	KH
Date Tested:	09/10/2017

Sydney Laboratory
Unit 5 / 43 Herbert St
Artarmon NSW 2064
email: artarmon@ghd.com.au
web: ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax: (02) 9462 4710

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GHD GEOTECHNICS

Report No: SYD1702956.2
Issue No: 1

Point Load Strength Index - Report

Client:	Transport for New South Wales
Project:	Sydney Metro
Location:	Marrickville
Job No.:	21-25491-52
Borehole / Sample No.:	**SRT_BH092**
Test Method:	RTA Test Method T223

Authorised Signatory: D. Brooke

Date of issue : 26/10/17

Test Results

Depth (m)	Test Type (D,A,I)	Dimensions				Results				Sample Description		
		D (mm)	L (mm)	W (mm)	De (mm)	Load, P (kN)	Failure Mode (1,2,3..)	Is (MPa)	Is_{50} (MPa)	Rock Type	Structure	Moisture
6.85	D	52.0	30.0		52.0	0.73	2	0.27	**0.27**	SS	BE	As Drilled
6.88	A	30.0		52.0	44.6	0.96	2	0.48	**0.46**	SS	BE	As Drilled
7.85	D	52.0	30.0		52.0	0.79	2	0.29	**0.30**	SS	BE	As Drilled
7.85	A	30.0		52.0	44.6	1.06	1	0.53	**0.51**	SS	BE	As Drilled
7.88	D	52.0	32.0		52.0	0.2	2	0.07	**0.08**	SS	BE	As Drilled
9.50	A	32.0		52.0	46.0	3.86	1	1.82	**1.76**	SS	BE	As Drilled
9.53	D	52.0	40.0		52.0	2.58	2	0.95	**0.97**	SS	BE	As Drilled
10.85	A	40.0		52.0	51.5	8.07	1	3.05	**3.09**	SS	BE	As Drilled
12.15	D	52.0	36.0		52.0	0.37	2	0.14	**0.14**	SS	BE	As Drilled
12.18	A	36.0		52.0	48.8	4.51	1	1.89	**1.87**	SS	BE	As Drilled

Comments (if applicable):

MOISTURE
(W) Wet
(M) Moist
(D) Dry
(AD) As Drilled
(AR) As Received

ROCK TYPE
(SS) Sandstone
(ST) Siltstone
(SH) Shale
(G) Granitic
(MSS) Meta Sandtone
(MST) Meta Siltstone

STRUCTRUE
(MA) Massive
(BE) Bedded
(IB) Interbedded
(LA) Laminated
(CR) Crystalline

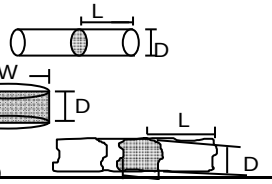
FAILURE MODE
1 = Fracture through fabric oblique to bedding
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by pre-existing:
(J) Joint plane, (M) Microfracture, (F) Foliation, (V) Vein
5 = Partial fracture or chip (Invalid result)

TEST TYPES

D = Diametral

A = Axial

I = Irregular Lump



L > 0.5 D

0.3W < D < W

0.3W < D < W

Time Since Sampling = 0 Days

Storage:

[X] CORE BOX [ ] UNDER COVER

[ ] WRAPPED [ ] OPEN AIR

[ ] UNWRAPPED [ ] UNKNOWN

Sampled By:	GHD
Date Sampled:	05/10/2017
Tested By:	KH
Date Tested:	05/10/2017

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Tel: (02) 9462 4860
Fax: (02) 9462 4710

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GHD GEOTECHNICS

Report No: SYD1702956.3
Issue No: 1

Point Load Strength Index - Report

Client:	Transport for New South Wales
Project:	Sydney Metro
Location:	Marrickville
Job No.:	21-25491-52
Borehole / Sample No.:	**SRT_BH093**
Test Method:	RTA Test Method T223

Authorised Signatory: D. Brooke

Date of issue : 26/10/17

Test Results

Depth (m)	Test Type (D,A,I)	Dimensions D (mm)	L (mm)	W (mm)	De (mm)	Results Load, P (kN)	Failure Mode (1,2,3..)	Is (MPa)	Is_{50} (MPa)	Sample Description Rock Type	Structure	Moisture
7.05	D	52.0	40.0		52.0	0.28	2	0.10	**0.11**	ST	BE	As Drilled
7.08	A	40.0		50.0	50.5	0.62	2	0.24	**0.24**	ST	BE	As Drilled
8.25	D	52.0	35.0		52.0	0.25	2	0.09	**0.09**	SS	BE	As Drilled
8.28	A	35.0		52.0	48.1	1.62	1	0.70	**0.69**	SS	BE	As Drilled

Dimensions **Sample Description**

7.05	D	52.0	40.0		52.0	0.28	2	0.10	**0.11**	ST	BE	As Drilled
7.08	A	40.0		50.0	50.5	0.62	2	0.24	**0.24**	ST	BE	As Drilled
8.25	D	52.0	35.0		52.0	0.25	2	0.09	**0.09**	SS	BE	As Drilled
8.28	A	35.0		52.0	48.1	1.62	1	0.70	**0.69**	SS	BE	As Drilled

9.73	D	52.0	30.0		52.0	0.3	2	0.11	**0.11**	SS	BE	As Drilled
9.76	A	30.0		50.0	43.7	2.8	1	1.47	**1.38**	SS	BE	As Drilled
10.85	D	52.0	30.0		52.0	2.01	2	0.74	**0.76**	SS	BE	As Drilled
10.82	A	30.0		52.0	44.6	3.74	1	1.88	**1.79**	SS	BE	As Drilled
11.70	D	52.0	40.0		52.0	1.48	2	0.55	**0.56**	SS	BE	As Drilled
11.73	A	40.0		52.0	51.5	6.33	1	2.39	**2.42**	SS	BE	As Drilled
13.10	D	52.0	40.0		52.0	4.87	2	1.80	**1.83**	SS	BE	As Drilled
13.07	A	40.0		52.0	51.5	8.44	1	3.19	**3.23**	SS	BE	As Drilled

Comments (if applicable):

MOISTURE
(W) Wet
(M) Moist
(D) Dry
(AD) As Drilled
(AR) As Received

ROCK TYPE
(SS) Sandstone
(ST) Siltstone
(SH) Shale
(G) Granitic
(MSS) Meta Sandtone
(MST) Meta Siltstone

STRUCTRUE
(MA) Massive
(BE) Bedded
(IB) Interbedded
(LA) Laminated
(CR) Crystalline

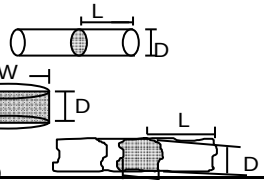
FAILURE MODE
1 = Fracture through fabric oblique to bedding
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by pre-existing:
(J) Joint plane, (M) Microfracture, (F) Foliation, (V) Vein
5 = Partial fracture or chip (Invalid result)

TEST TYPES

D = Diametral

A = Axial

I = Irregular Lump



L > 0.5 D

0.3W < D < W

0.3W < D < W

Time Since Sampling = 0 Days

Storage:

[X] CORE BOX [ ] UNDER COVER

[ ] WRAPPED [ ] OPEN AIR

[ ] UNWRAPPED [ ] UNKNOWN

Sampled By:	GHD
Date Sampled:	05/10/2017
Tested By:	KH
Date Tested:	05/10/2017

Sydney Laboratory
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web: ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax: (02) 9462 4710

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GHD GEOTECHNICS

Report No: SYD1702956.4
Issue No: 1

Point Load Strength Index - Report

Client:	Transport for New South Wales
Project:	Sydney Metro
Location:	Marrickville
Job No.:	21-25491-52
Borehole / Sample No.:	**SRT_BH094**
Test Method:	RTA Test Method T223

Authorised Signatory: D. Brooke

Date of issue : 26/10/17

Test Results

Depth (m)	Test Type (D,A,I)	Dimensions				Results				Sample Description		
		D (mm)	L (mm)	W (mm)	De (mm)	Load, P (kN)	Failure Mode (1,2,3..)	Is (MPa)	Is_{50} (MPa)	Rock Type	Structure	Moisture
12.50	D	52.0	22.0		52.0	0.47	2	0.17	**0.18**	SS	BE	As Drilled
12.53	A	22.0		52.0	38.2	1.65	1	1.13	**1.00**	SS	BE	As Drilled
14.95	D	52.0	25.0		52.0	0.38	2	0.14	**0.14**	SS	BE	As Drilled
14.92	A	25.0		52.0	40.7	2	1	1.21	**1.10**	SS	BE	As Drilled
16.20	D	50.0	22.0		50.0	0.67	2	0.27	**0.27**	SS	BE	As Drilled
16.23	A	22.0		52.0	38.2	1.7	1	1.17	**1.03**	SS	BE	As Drilled
17.45	D	50.0	30.0		50.0	1.27	2	0.51	**0.51**	SS	BE	As Drilled
17.48	A	30.0		52.0	44.6	2.58	1	1.30	**1.23**	SS	BE	As Drilled
18.50	D	52.0	20.0		52.0	1.32	2	0.49	**0.50**	SS	BE	As Drilled
18.53	A	20.0		52.0	36.4	1.77	1	1.34	**1.16**	SS	BE	As Drilled

Comments (if applicable):

MOISTURE
(W) Wet
(M) Moist
(D) Dry
(AD) As Drilled
(AR) As Received

ROCK TYPE
(SS) Sandstone
(ST) Siltstone
(SH) Shale
(G) Granitic
(MSS) Meta Sandtone
(MST) Meta Siltstone

STRUCTRUE
(MA) Massive
(BE) Bedded
(IB) Interbedded
(LA) Laminated
(CR) Crystalline

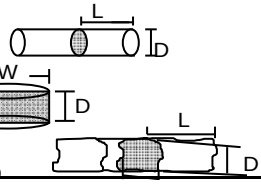
FAILURE MODE
1 = Fracture through fabric oblique to bedding
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by pre-existing:
(J) Joint plane, (M) Microfracture, (F) Foliation, (V) Vein
5 = Partial fracture or chip (Invalid result)

TEST TYPES

D = Diametral

A = Axial

I = Irregular Lump



L > 0.5 D

0.3W < D < W

0.3W < D < W

Time Since Sampling = 0 Days

Storage:

[X] CORE BOX [ ] UNDER COVER

[ ] WRAPPED [ ] OPEN AIR

[ ] UNWRAPPED [ ] UNKNOWN

Sampled By:	GHD
Date Sampled:	09/10/2017
Tested By:	KH
Date Tested:	09/10/2017

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Artarmon NSW 2064
email: artarmon@ghd.com.au
web: ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax: (02) 9462 4710

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GHD GEOTECHNICS

Report No: SYD1702956.5
Issue No: 1

Point Load Strength Index - Report

Client:	Transport for New South Wales
Project:	Sydney Metro
Location:	Marrickville
Job No.:	21-25491-52
Borehole / Sample No.:	**SRT_BH095**
Test Method:	RTA Test Method T223

Authorised Signatory: D. Brooke

Date of issue : 26/10/17

Test Results

Depth (m)	Test Type (D,A,I)	Dimensions				Results				Sample Description		
		D (mm)	L (mm)	W (mm)	De (mm)	Load, P (kN)	Failure Mode (1,2,3..)	Is (MPa)	Is_{50} (MPa)	Rock Type	Structure	Moisture
10.30	D	52.0	30.0		52.0	0.06	2	0.02	**0.02**	SS	BE	As Drilled
10.27	A	32.0		52.0	46.0	0.19	3	0.09	**0.09**	SS	BE	As Drilled
10.40	D	52.0	33.0		52.0	0.07	2	0.03	**0.03**	SS	BE	As Drilled
10.43	A	30.0		52.0	44.6	1.14	3	0.57	**0.54**	SS	BE	As Drilled
12.90	D	52.0	36.0		52.0	0.04	2	0.01	**0.02**	SS	BE	As Drilled
12.93	A	30.0		52.0	44.6	2.35	3	1.18	**1.12**	SS	BE	As Drilled
13.55	D	52.0	29.0		52.0	2.17	2	0.80	**0.82**	SS	BE	As Drilled
13.52	A	45.0		52.0	54.6	4.33	3	1.45	**1.51**	SS	BE	As Drilled
14.60	D	52.0	25.0		52.0	0.52	2	0.19	**0.20**	SS	BE	As Drilled
14.57	A	30.0		52.0	44.6	1.99	3	1.00	**0.95**	SS	BE	As Drilled
15.90	D	52.0	50.0		52.0	1.42	2	0.53	**0.53**	SS	BE	As Drilled
15.87	A	44.0		52.0	54.0	3.18	3	1.09	**1.13**	SS	BE	As Drilled
16.55	D	52.0	40.0		52.0	1.56	2	0.58	**0.59**	SS	BE	As Drilled
16.52	A	45.0		52.0	54.6	3.08	3	1.03	**1.08**	SS	BE	As Drilled
18.10	D	52.0	50.0		52.0	1.86	2	0.69	**0.70**	SS	BE	As Drilled
18.10	A	44.0		52.0	54.0	3.62	3	1.24	**1.29**	SS	BE	As Drilled
19.45	D	52.0	42.0		52.0	2.06	2	0.76	**0.78**	SS	BE	As Drilled
19.48	A	38.0		52.0	50.2	2.85	3	1.13	**1.13**	SS	BE	As Drilled
20.45	D	52.0	45.0		52.0	1.88	2	0.70	**0.71**	SS	BE	As Drilled
20.48	A	40.0		52.0	51.5	2.64	3	1.00	**1.01**	SS	BE	As Drilled

Comments (if applicable):

MOISTURE
(W) Wet
(M) Moist
(D) Dry
(AD) As Drilled
(AR) As Received

ROCK TYPE
(SS) Sandstone
(ST) Siltstone
(SH) Shale
(G) Granitic
(MSS) Meta Sandtone
(MST) Meta Siltstone

STRUCTRUE
(MA) Massive
(BE) Bedded
(IB) Interbedded
(LA) Laminated
(CR) Crystalline

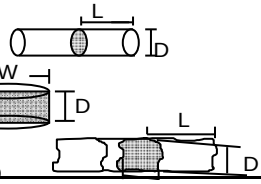
FAILURE MODE
1 = Fracture through fabric oblique to bedding
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by pre-existing:
(J) Joint plane, (M) Microfracture, (F) Foliation, (V) Vein
5 = Partial fracture or chip (Invalid result)

TEST TYPES

D = Diametral

A = Axial

I = Irregular Lump



L > 0.5 D

0.3W < D < W

0.3W < D < W

Time Since Sampling = 0 Days

Storage:

[X] CORE BOX [ ] UNDER COVER

[ ] WRAPPED [ ] OPEN AIR

[ ] UNWRAPPED [ ] UNKNOWN

Sampled By: GHD

Date Sampled: 16/10/2017

Tested By: KH

Date Tested: 16/10/2017

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Tel: (02) 9462 4860
Fax: (02) 9462 4710

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GHD GEOTECHNICS

Report No: SYD1702956.6
Issue No: 1

Point Load Strength Index - Report

Client:	Transport for New South Wales
Project:	Sydney Metro
Location:	Marrickville
Job No.:	21-25491-52
Borehole / Sample No.:	**SRT_BH096**
Test Method:	RTA Test Method T223

Authorised Signatory: D. Brooke

Date of issue : 26/10/17

Test Results

Depth (m)	Test Type (D,A,I)	Dimensions				Results				Sample Description		
		D (mm)	L (mm)	W (mm)	De (mm)	Load, P (kN)	Failure Mode (1,2,3..)	Is (MPa)	Is_{50} (MPa)	Rock Type	Structure	Moisture
11.25	D	52.0	33.0		52.0	0.21	2	0.08	**0.08**	SS	BE	As Drilled
11.28	A	33.0		52.0	46.7	0.21	1	0.10	**0.09**	SS	BE	As Drilled
12.65	D	52.0	30.0		52.0	0.24	2	0.09	**0.09**	SS	BE	As Drilled
12.68	A	30.0		52.0	44.6	1.59	1	0.80	**0.76**	SS	BE	As Drilled
13.50	D	52.0	30.0		52.0	2.05	2	0.76	**0.77**	SS	BE	As Drilled
13.53	A	30.0		52.0	44.6	2.67	1	1.34	**1.28**	SS	BE	As Drilled
15.45	D	52.0	30.0		52.0	0.2	2	0.07	**0.08**	SS	BE	As Drilled
15.48	A	30.0		52.0	44.6	2.67	1	1.34	**1.28**	SS	BE	As Drilled
17.70	D	52.0	32.0		52.0	2.46	2	0.91	**0.93**	SS	BE	As Drilled
17.73	A	32.0		52.0	46.0	3.45	1	1.63	**1.57**	SS	BE	As Drilled
18.88	D	52.0	31.0		52.0	2.19	2	0.81	**0.82**	SS	BE	As Drilled
18.88	A	31.0		52.0	45.3	2.72	1	1.33	**1.27**	SS	BE	As Drilled
19.90	D	52.0	42.0		52.0	2.17	2	0.80	**0.82**	SS	BE	As Drilled
19.93	A	42.0		52.0	52.7	2.33	1	0.84	**0.86**	SS	BE	As Drilled

Comments (if applicable):

MOISTURE
(W) Wet
(M) Moist
(D) Dry
(AD) As Drilled
(AR) As Received

ROCK TYPE
(SS) Sandstone
(ST) Siltstone
(SH) Shale
(G) Granitic
(MSS) Meta Sandtone
(MST) Meta Siltstone

STRUCTRUE
(MA) Massive
(BE) Bedded
(IB) Interbedded
(LA) Laminated
(CR) Crystalline

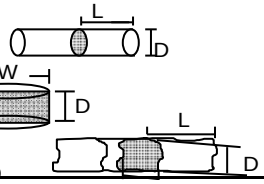
FAILURE MODE
1 = Fracture through fabric oblique to bedding
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by pre-existing:
(J) Joint plane, (M) Microfracture, (F) Foliation, (V) Vein
5 = Partial fracture or chip (Invalid result)

TEST TYPES

D = Diametral

A = Axial

I = Irregular Lump



L > 0.5 D

0.3W < D < W

0.3W < D < W

Time Since Sampling = 0 Days

Storage:

[X] CORE BOX [ ] UNDER COVER

[ ] WRAPPED [ ] OPEN AIR

[ ] UNWRAPPED [ ] UNKNOWN

Sampled By:	GHD
Date Sampled:	09/10/2017
Tested By:	KH
Date Tested:	09/10/2017

Sydney Laboratory
57 Herbert St
Artarmon NSW 2064
email: artarmon@ghd.com.au
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Tel: (02) 9462 4860
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GHD GEOTECHNICS

Uniaxial Compressive Strength - Report

Report No: SYD1702530
Issue No: 2

Client:	Transport for NSW
Project:	Sydney Metro - Sydenham to Bankstown
Location:	Marrickville
Job No.:	2125491/52

Accredited for compliance with ISO / IEC 17025
Laboratory Accreditation No. 679

Authorised signatory: D. Brooke

Date of Issue: 7/11/2017

Sample Details

Test Method: AS4133.4.2.2 - UCS less than 50 Mpa
Storage History: Tested as received

Sample ID:	SYD17-495-01	SYD17-0495-08			
Client Sample ID:	-	-			
Borehole No.:	-	-			
Depth (m):	SRT_BH092	SRT_BH090			
Date Sampled:	9.57 - 9.95	9.30 - 9.46			
Date Tested:	Not supplied	Not supplied			
Sample Description:	20/10/2017 Interbedded SS/ST	20/10/2017 Interbedded SS/ST			

Test Results

Sample Height (mm):	103.7	126.5			
Sample Diameter (mm):	51.7	51.5			
Sample Height/Diameter Ratio:	2.0	2.5			
Sample Dry Density (t/m3):	2.498	2.444			
Moisture Content (%):	2.7	3.9			
Time of Failure (min):	8.0	5.0			
Uniaxial compressive strength (MPa):	**22.0**	**9.0**			
Mode of Failure:	Mixed Mode Lamination	Mixed Mode Lamination			
Specimen Comments:		Note 5			

Comments (if applicable):

Note 1	The length to diameter ratio falls outside the test method limits of 2.5:1 to 3:1.
Note 2	Specimen sides not straight to within 0.3mm
Note 3	Specimen ends not parallel or at right angles
Note 4	(T229) The length to diameter ratio falls outside the test method limits of 2.0:1 to 2.5:1.
Note 5	Maximum load falls below the limit of performance of compression machine (25kN)

Testing machine Wykeham Farrance - 2000 kN

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GHD GEOTECHNICS

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Tel: (02) 9462 4860
Fax: (02) 9462 4710

Uniaxial Compressive Strength - Report

Report No: SYD1702530
Issue No: 2

Client:	Transport for NSW
Project:	Sydney Metro - Sydenham to Bankstown
Location:	Marrickville
Job No.:	2125491/52

Accredited for compliance
with ISO / IEC 17025
Laboratory Accreditation No. 679

Photographs

-
SRT_BH092

-
SRT_BH090

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web: ghd.com.au/ghdgeotechnics
Tel: (02) 9462 4860
Fax: (02) 9462 4710

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GHD GEOTECHNICS

Uniaxial Compressive Strength - Report

Report No: SYD1702661
Issue No: 1

Client:	Transport for NSW
Project:	Sydney Metro - Sydenham to Bankstown
Location:	Marrickville
Job No.:	2125491/52

Accredited for compliance with ISO / IEC 17025
Laboratory Accreditation No. 679

Authorised signatory: D. Brooke

Date of Issue: 7/11/2017

Sample Details

Test Method: AS4133.4.2.2 - UCS less than 50 Mpa
Storage History: Tested as received

Sample ID:	SYD17-511-03	SYD17-0511-04			
Client Sample ID:	-	-			
Borehole No.:	SRT_BH094	SRT_BH096			
Depth (m):	18.8-19.0	18.46 - 18.75			
Date Sampled:	13/10/2017	13/10/2017			
Date Tested:	27/10/2017	27/10/2017			
Sample Description:	Interbedded SS/ST	Interbedded SS/ST			

Test Results

Sample Height (mm):	138.5	142.3			
Sample Diameter (mm):	51.8	51.7			
Sample Height/Diameter Ratio:	2.7	2.8			
Sample Dry Density (t/m3):	2.377	2.478			
Moisture Content (%):	4.0	3.7			
Time of Failure (min):	4.0	7.0			
Uniaxial compressive strength (MPa):	**7.2**	**18.2**			
Mode of Failure:	Mixed Mode	Double Shear			
Specimen Comments:					

Comments (if applicable):

Note 1	The length to diameter ratio falls outside the test method limits of 2.5:1 to 3:1.
Note 2	Specimen sides not straight to within 0.3mm
Note 3	Specimen ends not parallel or at right angles
Note 4	(T229) The length to diameter ratio falls outside the test method limits of 2.0:1 to 2.5:1.
Note 5	Maximum load falls below the limit of performance of compression machine (25kN)

Testing machine Wykeham Farrance - 2000 kN

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Uniaxial Compressive Strength - Report

Report No: SYD1702661
Issue No: 1

Client:	Transport for NSW
Project:	Sydney Metro - Sydenham to Bankstown
Location:	Marrickville
Job No.:	2125491/52

Accredited for compliance with ISO / IEC 17025
Laboratory Accreditation No. 679

Photographs

SRT_BH094
18.8-19.0

SRT_BH096
18.46 - 18.75

Appendix E – Field Calibration Sheets and Groundwater Purging Sheets

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-105759

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
Pump	Operation	✓	
	Filter	✓	
	Flow	✓	
	Valves, Diaphragm	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	PID	✓	10.6 ev
Alarms	Beeper	✓	**Low** 50ppm / **High** 100ppm / **TWA** N/A / **STEL** N/A
	Settings	✓	
Software	Version	✓	
Data logger	Operation		
Download	Operation	✓	
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		98ppm Isobutylene	NATA	SY137		98.5ppm

Calibrated by: **Sophie Boler**

Calibration date: **15/09/2017**

Next calibration due: **15/10/2017**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 11C100764

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper	✓	
	Settings	✓	
Software	Version	✓	
Data logger	Operation	✓	
Download	Operation	✓	
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		309865	pH 9.20
2. pH 7.00		pH 7.00		307928	pH 6.99
3. pH 4.00		pH 4.00		307927	pH 4.45
4. mV		231.8mV		295105/306680	232.6mV
5. EC		2.76mS		292380	2.74mS
6. D.O		0.00 ppm		CS13715	0.18ppm
7. Temp		20.7°C		MultiTherm	20.6°C

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **10/11/2017**

Next calibration due: **09/05/2018**

GROUNDWATER PURGING AND SAMPLING FIELD SHEET

PROJECT DETAILS		Borehole ID	SRT_BH092
Project Number:	21 25491 53	Sample ID:	SRT_BH092_GW
Project Name:	Sydney Metro Pt 5	Date:	14/11/2017
Client:	Transport for NSW	Sampler:	Carmen Yi
Site:	Marrickville	Purge Method:	Peri Pump
Well Condition (i.e road box, locked etc):	Road box, locked.	Sample Method:	Peri Pump
Depth to Water Table Pre-purge (from TOC):	2.213 mbtoc	Casing Type:	PVC
Depth of PSH (from TOC):	None	Well Diameter:	50 mm
Depth to Bottom of Casing (BOC) from TOC:	4.323 mbtoc	Calculated Bore Volume(L):	
Casing Stickup:	-0.132mbgl	QA Collected:	GWQD1, GWRT1
Depth to Water Table Post - purge (from TOC):	3.265		

FIELD PARAMETERS (RECORDED USING YSI) Pro Plus. 11C100764

Time	Volume (L)	Depth to Water from TOC(m)	D.O (mg/L)	E.C (us/cm)	pH	Eh (mv)	Temp (°C)	Comments
7:45	1.0	2.40	1.06	11410	5.57	157.7	20.5	Clear, low turbidity, no odour, no sheen
8:00	2.0	2.52	1.07	11345	5.50	190.5	20.6	
8:05	2.5	2.59	1.28	11163	5.41	181.9	20.6	
8:15	3.0	2.65	0.98	11298	5.41	174.8	20.6	
8:20	3.5	2.73	0.82	11416	5.40	190.8	20.6	
8.25	4.5	2.80	0.68	11666	5.36	185.2	20.6	
8.30	5.0	2.84	0.30	13924	5.39	163.8	20.5	
8.35	5.5	2.90	0.36	13220	5.34	164.5	20.6	
8:40	6.0	2.94	0.48	12727	5.37	171.6	20.8	Left for recharge for 2 min
8:45	6.5	2.95	0.51	12973	5.35	163.0	21.6	
Post Sample Parameters			0.48	13612	5.36	138.3	20.5	

Number of Bottles: 7VC, 1xP, 1x MP, 1x Amber

Comments: Pump inlet ~ 3.5mbtoc

Very low yield, peri pump used lowest speed setting

Well Volume Calculation (50mm diameter) 3.8xH (H=height of water column)

GROUNDWATER PURGING AND SAMPLING FIELD SHEET

GHD

PROJECT DETAILS		Borehole ID	SRT - BH094
Project Number:	21 25491 53	Sample ID:	SRT - BH094
Project Name:	Sydney Metro P+S	Date:	13 Nov 2017
Client:	~~Sydney~~ Transport for NSW	Sampler:	Carmen Yi
Site:	Marrickville	Purge Method:	Peri Pump
Well Condition (i.e road box, locked etc):	Road box, locked.	Sample Method:	Peri Pump
Depth to Water Table Pre-purge (from TOC):	1.184 m	Casing Type:	PVC
Depth of PSH (from TOC):	None	Well Diameter:	50 mm
Depth to Bottom of Casing (BOC) from TOC:	4.095 m	Calculated Bore Volume(L):	~17.4 L
Casing Stickup:	- 0.127 mbgl	QA Collected:	
Depth to Water Table Post - purge (from TOC):			

FIELD PARAMETERS (RECORDED USING YSI Pro) plus

Time	Volume (L)	Depth to Water from TOC(m)	D.O (mg/L)	E.C (us/cm)	pH	Eh (mv)	Temp (°C)	Comments
2~~5~~50	0.5	1.33	8.45	7053	6.46	-11.6	24.1	Clear, low turbidity, no odour
3:00	1.5	1.56	8.84	5781	6.53	2.6	23.5°	NO sheen
3:05	2.0	1.75	8.82	4796	~~6.53~~ 6.64	4.7	23.6°	↳ Become pale red, low to medium plasticity
3.15	2.5	1.92	8.19	4624	6.56	5.7	23.7	no odour, no sheen
3.20	3.0	2.03	0.53	5046	6.~~5~~6	-23.5	23.6	
3.25	3.5	2.11	0.51	5382	6.41	-20.6	23.8	
3.30	4.5	2.28	0.31	6308	6.36	-13.5	23.2	
3.35	5.0	2.44	0.24	7~~8~~56	6.42	-12.7	22.9	
3.45	5.5	2.51	0.25	7723	6.43	-13.3	23.0	
3.50	6.0	2.60	0.26	7869	6.44	-13.9	22.8	
Post Sample Parameters								

Number of Bottles: 4 VC, ~~1~~ P, 1 Amber glass 1 x 500 mL P

Comments: Very low yield - Peri pump used lowest speed setting
Pump inlet ~3m bgl

Well Volume Calculation (50mm diameter) 3.8xH (H=height of water column)

Appendix F – Contamination Assessment Results Tables

Appendix F
Table F1 Summary of contamination assessment soil analytical results

		Asbestos	Heavy Metal								Inorganic	OCP																						
		Asbestos Reported Result	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Moisture Content (dried @ 103°C)	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	d-BHC	4,4 DDD	4,4 DDT	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide
		Comment	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			2	0.4	5	5	5	0.1	5	5	1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HIL D Comm/Ind			3000	900	3600	240000	1500	730	6000	400000							45		530				3600					100				50	
NEPM 2013 Table 1A(3) HSL D Comm/Ind Soil for Vapour Intrusion, Sand																																	
0-1m																																	
1-2m																																	
2-4m																																	
>4m																																	
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																	
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Number**																													
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	12	<0.4	21	53	160	<0.1	68	140	6.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	6	<0.4	9.7	14	54	0.2	<5	66	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	not detected	5.3	<0.4	11	16	71	0.3	<5	96	9.5	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	not detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	4.4	<0.4	9.7	11	25	0.1	<5	45	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	12	<0.4	<5	13	9.6	<0.1	<5	<5	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	not detected	22	1.5	100	96	140	<0.1	54	600	9.6	1.1	<0.1	<0.05	<0.05	<0.05	1.1	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	1.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	not detected	5.1	<0.4	15	21	47	<0.1	6.4	780	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	8.4	<0.4	18	<5	12	<0.1	<5	8.7	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	not detected	14	0.9	33	160	250	0.1	21	660	24	4.02	<0.1	0.34	<0.05	<0.05	0.48	<0.05	<0.1	<0.05	2	1.2	3.54	0.48	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	2.4	<0.4	<5	9	32	<0.1	<5	9.4	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	<2	<0.4	<5	21	40	<0.1	<5	5.3	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	not detected	11	<0.4	30	25	79	<0.1	11	1200	14	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	not detected	6.6	<0.4	18	12	23	<0.1	<5	10	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	12	<0.4	10	17	35	<0.1	<5	7.1	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	not detected	39	<0.4	110	260	250	0.2	72	170	5.8	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	not detected	14	<0.4	30	44	82	0.2	25	55	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	<2	<0.4	9.8	<5	<5	<0.1	<5	<5	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	not detected	13	<0.4	16	42	180	0.1	41	120	11	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	not detected	12	<0.4	18	7.3	61	0.4	6.1	75	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	2.3	<0.4	16	5	15	<0.1	5.3	8.4	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	not detected	5.9	<0.4	12	7.8	60	<0.1	5.7	32	15	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	not detected	7.9	<0.4	21	12	23	<0.1	7	10	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	36	<0.4	13	82	<5	<0.1	7.2	33	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	8.8	<0.4	5.2	95	30	0.1	<5	7.4	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	not detected	9.9	<0.4	31	6.6	33	<0.1	5.3	15	21	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	3.3	<0.4	<5	5.8	9.4	<0.1	<5	<5	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	2.8	<0.4	13	<5	6.4	<0.1	<5	<5	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	not detected	-	-	-	-	-	-	-	-	9	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	-	15	0.8	35	200	370	0.1	36	1500	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	<2	<0.4	<5	11	7.9	<0.1	<5	14	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	11	<0.4	8.6	27	8.2	<0.1	<5	<5	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	62	<0.4	9.3	36	29	<0.1	6.2	32	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	not detected	9.1	<0.4	21	59	150	0.1	14	99	15	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	5.4	<0.4	18	15	44	<0.1	6.7	25	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	<2	<0.4	15	<5	15	<0.1	<5	10	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

									OPP																														
						Hexachlorobenzene	Methoxychlor	Toxaphene	Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	EPN	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Parathion	Phorate	Pirimiphos-methyl	Pyrazophos	Ronnel
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.05	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2
NEPM 2013 Table 1A(1) HIL D Comm/Ind						80	2500	160					2000																										
NEPM 2013 Table 1A(3) HSL D Comm/Ind Soil for Vapour Intrusion, Sand																																							
0-1m																																							
1-2m																																							
2-4m																																							
>4m																																							
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																							
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Number**																																		
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number				Organic							
						Terbufos	Trichloronate	Tetrachlorvinphos	C6-C10 minus BTEX (F1)	C6 - C10 Fraction	>C10-C16 minus Naphthalene (F2)	>C10 - C16 Fraction	>C16 - C34 Fraction (F3)	>C34 - C40 Fraction (F4)	C6 - C 9 Fraction	Naphthalene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.2	0.2	0.2	20	20	50	50	100	100	20	0.5
NEPM 2013 Table 1A(1) HIL D Comm/Ind																
NEPM 2013 Table 1A(3) HSL D Comm/Ind Soil for Vapour Intrusion, Sand																
0-1m									260		NL					NL
1-2m									370		NL					NL
2-4m									630		NL					NL
>4m									NL		NL					NL
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil										700		1000	3500	10000		
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	<20	<20	<50	<50	180	130	<20	<0.5
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	230	<100	<20	<0.5
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	530	160	<20	<0.5
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	200	<100	<20	<0.5
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	540	210	<20	<0.5
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	1000	270	<20	<0.5
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	<20	<20	160	160	4700	2700	<20	<0.5
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	140	<100	<20	<0.5
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.2	<0.2	<0.2	<20	<20	<50	<50	730	610	<20	<0.5
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.2	<0.2	<0.2	<20	<20	<50	<50	470	190	<20	<0.5
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.2	<0.2	<0.2	<20	<20	<50	<50	340	360	<20	<0.5
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.2	<0.2	<0.2	<20	<20	<50	<50	<100	<100	<20	<0.5
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	200	110	<20	<0.5
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.2	<0.2	<0.2	<20	<20	<50	<50	570	220	<20	<0.5
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	180	<100	<20	<0.5
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5

Field_ID	PAH																					
	Pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	PAHs (Sum of total) - Lab calc	Benzo(a)pyrene TEQ (zero) - Lab Calc	Benzo(a)pyrene TEQ (half LOR) - Lab Calc	Benzo(a)pyrene TEQ (LOR) - Lab Calc	Arochlor 1016	Arochlor 1221
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1
NEPM 2013 Table 1A(1) HIL D Comm/Ind																	4000	40	40	40		
NEPM 2013 Table 1A(3) HSL D Comm/Ind Soil for Vapour Intrusion, Sand																						
0-1m															NL							
1-2m															NL							
2-4m															NL							
>4m															NL							
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																						
DUP03	2.6	<0.5	<0.5	<0.5	1.3	1.7	1.2	1.4	0.9	1.4	<0.5	2.5	<0.5	1	<0.5	1.1	15.1	2.2	2.5	2.7	-	-
DUP1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G01_0.2-0.4	5.3	<0.5	0.5	0.9	2.2	2.3	1.6	2.1	1.6	2.3	<0.5	5	<0.5	1.2	<0.5	6	31	3	3.3	3.5	<0.5	<0.1
RCD-G01_0.2-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.5-0.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G01_3.0-3.45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G02_0.2-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	5.6	<0.5	<0.5	1.2	2.2	2.1	1.5	2	1.1	2.2	<0.5	6.1	<0.5	1	<0.5	4.6	29.6	2.8	3.1	3.3	<0.5	<0.1
RCD-G02_1.1-1.2	4.9	<0.5	<0.5	0.7	2.9	3.2	2.1	3	1.6	3	0.6	4.9	<0.5	1.5	<0.5	2.4	30.8	4.8	4.8	4.8	-	-
RCD-G02_2.3-2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G03_0.2-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	5	<0.5	<0.5	0.6	2.3	2.2	1.9	2.4	1.3	2.6	<0.5	5.2	<0.5	1.2	<0.5	3.4	28.1	3	3.3	3.5	<0.5	<0.1
RCD-G03_1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G03_6.0-6.45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G04_0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	1	<0.5	<0.5	<0.5	0.5	0.6	0.6	0.6	<0.5	0.6	<0.5	1.2	<0.5	<0.5	<0.5	0.7	5.8	0.8	1.1	1.3	<0.5	<0.1
RCD-G04_1.0-1.45	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.6	1.2	-	-
RCD-G04_1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G05_0.2-0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.1
RCD-G05_0.5-0.8	1.3	<0.5	<0.5	<0.5	0.6	0.7	0.5	0.6	<0.5	0.7	<0.5	1.4	<0.5	<0.5	<0.5	1	6.8	0.9	1.2	1.4	-	-
RCD-G05_3.0-3.45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G06_0.1-0.4	8.8	<0.5	<0.5	1.2	4.6	5.4	4.1	4.2	2.6	4.7	0.7	8.5	<0.5	2.9	<0.5	3.4	51.1	7.8	7.8	7.8	<0.5	<0.1
RCD-G06_0.5-0.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G06_2.4-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G07_0.2-0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.1
RCD-G07_0.5-0.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G07_6.0-6.45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCG-G02_7.5-7.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD681_0.2-0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.1
SRT_LD681_1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD681_3.5-4.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD682_0.05-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.1
SRT_LD682_0.2-0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	0.6	1.2	-	-
SRT_LD682_0.5-0.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD682_2.0-2.45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD682_3.5-3.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD683_0.05-0.15	12	<0.5	1.3	1.5	6.6	7.9	5.8	6.7	4.9	6.6	1.8	12	0.6	4.3	<0.5	6	78	12	12	12	<0.5	<0.1
SRT_LD683_0.15-0.5	2.3	<0.5	<0.5	<0.5	1.1	1.3	0.9	1	0.6	1.2	<0.5	2.3	<0.5	0.6	<0.5	1.1	12.4	1.7	1.9	2.2	-	-
SRT_LD683_1.5-1.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-

	PCB						SVOC																													
	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Total)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Dinoseb	Pentachlorophenol	Phenol	tetrachlorophenols	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)	Chlorinated hydrocarbons EPAVic	Vic EPA IWRG 621 Other chlorinated hydrocarbons (Total)	1,1,1,2-tetrachloroethane	Total MAH	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	1	1	0.5	0.5	5	0.5	0.5	0.2	1	0.4	5	20	1	5	20	1	0.5	1	1	20	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1A(1) HIL D Comm/Ind						7																660	240000											
NEPM 2013 Table 1A(3) HSL D Comm/Ind Soil for Vapour Intrusion, Sand																																		
0-1m																																		
1-2m																																		
2-4m																																		
>4m																																		
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																		

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number																																
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	-	-	-	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number	VOC 1,1-dichloroethene	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene Total	1,2,4-trimethylbenzene	Isopropylbenzene	Styrene	1,2,3-trichloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2-butanone (MEK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Acetone	Allyl chloride	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.5	0.1	0.1	0.1	0.1	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1A(1) HIL D Comm/Ind																																						
NEPM 2013 Table 1A(3) HSL D Comm/Ind Soil for Vapour Intrusion, Sand																																						
0-1m							3	NL	NL		230																											
1-2m							3	NL	NL		NL																											
2-4m							3	NL	NL		NL																											
>4m							3	NL	NL		NL																											
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																						
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.1	<0.1	-	<0.1	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	<0.5	-	-	-	-	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.5	-	<0.1	<0.1	-	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

																	Volatile					
	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Iodomethane	TCE	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.2	0.3
NEPM 2013 Table 1A(1) HIL D Comm/Ind																				
NEPM 2013 Table 1A(3) HSL D Comm/Ind Soil for Vapour Intrusion, Sand																				
0-1m															3	999999	999999			230
1-2m															3	999999	999999			999999
2-4m															3	999999	999999			999999
>4m															3	999999	999999			999999
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																				

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number																	
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	0.2	0.1	0.2	0.5	0.7
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	0.2	0.3	0.5
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	<0.2	<0.3
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	-
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	<0.1	<0.2	-
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3

							Asbestos	Heavy Metal								Inorganic	OCP																					
							Asbestos Reported Result	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Moisture Content (dried @ 103°C)	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	d-BHC	4,4 DDD	4,4 DDT	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide
							Comment	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL								2	0.4	5	5	5	0.1	5	5	1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NSW EPA (2014) General Solid Waste CT1 (No Leaching)								100	20	100		100	4	40																								
NSW EPA (2014) General Solid Waste SCC1 (with TCLP)								500	100	1900		1500	50	1050																								
NSW EPA (2014) Restricted Solid Waste CT2 (No Leaching)								400	80	400		400	16	160																								
NSW EPA (2014) Restricted Solid Waste SCC2 (with TCLP)								2000	400	7600		6000	200	4200																								
NSW EPA (2014) Special Waste (Asbestos)																																						
Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number																																	
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987		-	12	<0.4	21	53	160	<0.1	68	140	6.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778		-	6	<0.4	9.7	14	54	0.2	<5	66	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778		not detected	5.3	<0.4	11	16	71	0.3	<5	96	9.5	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310		-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778		not detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778		-	4.4	<0.4	9.7	11	25	0.1	<5	45	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778		-	12	<0.4	<5	13	9.6	<0.1	<5	<5	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310		-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778		not detected	22	1.5	100	96	140	<0.1	54	600	9.6	1.1	<0.1	<0.05	<0.05	<0.05	1.1	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	1.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778		not detected	5.1	<0.4	15	21	47	<0.1	6.4	780	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778		-	8.4	<0.4	18	<5	12	<0.1	<5	8.7	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310		-	-	-	-	-	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778		not detected	14	0.9	33	160	250	0.1	21	660	24	4.02	<0.1	0.34	<0.05	<0.05	0.48	<0.05	<0.1	<0.05	2	1.2	3.54	0.48	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778		-	2.4	<0.4	<5	9	32	<0.1	<5	9.4	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778		-	<2	<0.4	<5	21	40	<0.1	<5	5.3	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310		-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778		not detected	11	<0.4	30	25	79	<0.1	11	1200	14	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778		not detected	6.6	<0.4	18	12	23	<0.1	<5	10	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778		-	12	<0.4	10	17	35	<0.1	<5	7.1	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987		not detected	39	<0.4	110	260	250	0.2	72	170	5.8	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987		not detected	14	<0.4	30	44	82	0.2	25	55	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987		-	<2	<0.4	9.8	<5	<5	<0.1	<5	<5	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987		not detected	13	<0.4	16	42	180	0.1	41	120	11	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987		not detected	12	<0.4	18	7.3	61	0.4	6.1	75	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987		-	2.3	<0.4	16	5	15	<0.1	5.3	8.4	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987		not detected	5.9	<0.4	12	7.8	60	<0.1	5.7	32	15	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987		not detected	7.9	<0.4	21	12	23	<0.1	7	10	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987		-	36	<0.4	13	82	<5	<0.1	7.2	33	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778		-	8.8	<0.4	5.2	95	30	0.1	<5	7.4	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142		not detected	9.9	<0.4	31	6.6	33	<0.1	5.3	15	21	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142		-	3.3	<0.4	<5	5.8	9.4	<0.1	<5	<5	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142		-	2.8	<0.4	13	<5	6.4	<0.1	<5	<5	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142		not detected	-	-	-	-	-	-	-	-	9	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142		-	15	0.8	35	200	370	0.1	36	1500	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142		-	<2	<0.4	<5	11	7.9	<0.1	<5	14	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142		-	11	<0.4	8.6	27	8.2	<0.1	<5	<5	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142		-	62	<0.4	9.3	36	29	<0.1	6.2	32	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142		not detected	9.1	<0.4	21	59	150	0.1	14	99	15	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142		-	5.4	<0.4	18	15	44	<0.1	6.7	25	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142		-	<2	<0.4	15	<5	15	<0.1	<5	10	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

									OPP																														
						Hexachlorobenzene	Methoxychlor	Toxaphene	Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	EPN	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Parathion	Phorate	Pirimiphos-methyl	Pyrazophos	Ronnel
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.05	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2
NSW EPA (2014) General Solid Waste CT1 (No Leaching)													4																										
NSW EPA (2014) General Solid Waste SCC1 (with TCLP)													7.5																										
NSW EPA (2014) Restricted Solid Waste CT2 (No Leaching)													16																										
NSW EPA (2014) Restricted Solid Waste SCC2 (with TCLP)													30																										
NSW EPA (2014) Special Waste (Asbestos)																																							
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Number**																																		
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.05	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

				Organic								PAH																							
				Terbufos	Trichloronate	Tetrachlorvinphos	C6-C10 minus BTEX (F1)	C6 - C10 Fraction	>C10-C16 minus Naphthalene (F2)	>C10 - C16 Fraction	>C16 - C34 Fraction (F3)	>C34 - C40 Fraction (F4)	C6 - C 9 Fraction	Naphthalene	Pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	PAHs (Sum of total) - Lab calc	Benzo(a)pyrene TEQ (zero) - Lab Calc	Benzo(a)pyrene TEQ (half LOR) - Lab Calc	Benzo(a)pyrene TEQ (LOR) - Lab Calc	Arochlor 1016	Arochlor 1221
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.2	0.2	0.2	20	20	50	50	100	100	20	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1
NSW EPA (2014) General Solid Waste CT1 (No Leaching)													650							0.8										200					
NSW EPA (2014) General Solid Waste SCC1 (with TCLP)													650							10										200					
NSW EPA (2014) Restricted Solid Waste CT2 (No Leaching)													2600							3.2										800					
NSW EPA (2014) Restricted Solid Waste SCC2 (with TCLP)													2600							23										800					
NSW EPA (2014) Special Waste (Asbestos)																																			
Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number																															
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	<20	<20	<50	<50	180	130	<20	<0.5	2.6	<0.5	<0.5	<0.5	1.3	1.7	1.2	1.4	0.9	1.4	<0.5	2.5	<0.5	1	<0.5	1.1	15.1	2.2	2.5	2.7	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	230	<100	<20	<0.5	5.3	<0.5	0.5	0.9	2.2	2.3	1.6	2.1	1.6	2.3	<0.5	5	<0.5	1.2	<0.5	6	31	3	3.3	3.5	<0.5	<0.1
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	530	160	<20	<0.5	5.6	<0.5	<0.5	1.2	2.2	2.1	1.5	2	1.1	2.2	<0.5	6.1	<0.5	1	<0.5	4.6	29.6	2.8	3.1	3.3	<0.5	<0.1
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	200	<100	<20	<0.5	4.9	<0.5	<0.5	0.7	2.9	3.2	2.1	3	1.6	3	0.6	4.9	<0.5	1.5	<0.5	2.4	30.8	4.8	4.8	4.8	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	540	210	<20	<0.5	5	<0.5	<0.5	0.6	2.3	2.2	1.9	2.4	1.3	2.6	<0.5	5.2	<0.5	1.2	<0.5	3.4	28.1	3	3.3	3.5	<0.5	<0.1
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	<0.2	<0.2	<0.2	<20	<20	<50	<50	1000	270	<20	<0.5	1	<0.5	<0.5	<0.5	0.5	0.6	0.6	0.6	<0.5	0.6	<0.5	1.2	<0.5	<0.5	<0.5	0.7	5.8	0.8	1.1	1.3	<0.5	<0.1
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	<20	<20	160	160	4700	2700	<20	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.6	1.2	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	140	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.2	<0.2	<0.2	<20	<20	<50	<50	730	610	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.1
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	1.3	<0.5	<0.5	<0.5	0.6	0.7	0.5	0.6	<0.5	0.7	<0.5	1.4	<0.5	<0.5	<0.5	1	6.8	0.9	1.2	1.4	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.2	<0.2	<0.2	<20	<20	<50	<50	470	190	<20	<0.5	8.8	<0.5	<0.5	1.2	4.6	5.4	4.1	4.2	2.6	4.7	0.7	8.5	<0.5	2.9	<0.5	3.4	51.1	7.8	7.8	7.8	<0.5	<0.1
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.2	<0.2	<0.2	<20	<20	<50	<50	340	360	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.1
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.2	<0.2	<0.2	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.1
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.1
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	200	110	<20	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	0.6	1.2	-	-
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.2	<0.2	<0.2	<20	<20	<50	<50	570	220	<20	<0.5	12	<0.5	1.3	1.5	6.6	7.9	5.8	6.7	4.9	6.6	1.8	12	0.6	4.3	<0.5	6	78	12	12	12	<0.5	<0.1
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	180	<100	<20	<0.5	2.3	<0.5	<0.5	<0.5	1.1	1.3	0.9	1	0.6	1.2	<0.5	2.3	<0.5	0.6	<0.5	1.1	12.4	1.7	1.9	2.2	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	<20	<20	<50	<50	<100	<100	<20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	-

							PCB						SVOC																								TPH							
							Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Total)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Dinoseb	Pentachlorophenol	Phenol	tetrachlorophenols	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 (Sum of Total)	Chlorinated hydrocarbons EPAVic	Vic EPA IWRG 621 Other chlorinated hydrocarbons (Total	1,1,1,2-tetrachloroethane	Total MAH
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	mg/kg	mg/kg
EQL							0.5	0.5	0.5	0.5	0.5	0.5	1	1	0.5	0.5	5	0.5	0.5	0.2	1	0.4	5	20	1	5	20	1	0.5	1	1	20	20	50	50	50	0.5	0.5	0.5	0.5
NSW EPA (2014) General Solid Waste CT1 (No Leaching)													8000	40						4000											288				10000			200	
NSW EPA (2014) General Solid Waste SCC1 (with TCLP)												50	14400	72						7200											518				10000			360	
NSW EPA (2014) Restricted Solid Waste CT2 (No Leaching)													32000	160						16000											1152				40000			800	
NSW EPA (2014) Restricted Solid Waste SCC2 (with TCLP)												50	57600	288						28800											2073				40000			1440	
NSW EPA (2014) Special Waste (Asbestos)																																									
Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number																																					
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	120	130	250	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	62	<50	62	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	170	83	253	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	80	<50	80	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	<50	<50	<50	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	310	320	630	-	-	-	-
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	130	98	228	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	<50	<50	<50	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	360	290	650	-	-	-	-
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	<50	<50	<50	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	73	<50	98	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	21	690	490	1201	-	-	-	-
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	61	2400	3800	6261	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	99	66	165	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	440	590	1030	<0.5	<0.5	<0.5	-
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	55	<50	55	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	51	<50	51	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	330	240	570	<0.5	<0.5	<0.5	-
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	210	260	470	<0.5	<0.5	<0.5	-
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	55	<50	55	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	130	130	260	<0.5	<0.5	<0.5	<0.5
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	<50	<50	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<0.4	<5	<20	<1	<5	<20	<1	<0.5	<1	<1	<20	<20	400	310	710	<0.5	<0.5	<0.5	<0.5
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	110	120	230	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	52	52	-	-	-	-

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number	VOC: 1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene Total	1,2,4-trimethylbenzene	Isopropylbenzene	Styrene	1,2,3-trichloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2-butanone (MEK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Acetone	Allyl chloride	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NSW EPA (2014) General Solid Waste CT1 (No Leaching)						600	26	24		14	10	288	600		1000			60			86	10					150	4000										
NSW EPA (2014) General Solid Waste SCC1 (with TCLP)						1080	46.8	43.2		25	18	518	1080		1800			108			155	18					270	7200										
NSW EPA (2014) Restricted Solid Waste CT2 (No Leaching)						2400	104	96		56	40	1152	2400		4000			240			344	40					600	16000										
NSW EPA (2014) Restricted Solid Waste SCC2 (with TCLP)						4320	187.2	172.8		100	72	2073	4320		7200			432			620	72					1080	28800										
NSW EPA (2014) Special Waste (Asbestos)																																						
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	-	<0.1	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.1	<0.1	-	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

																				Volatile					
	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Iodomethane	TCE	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.2	0.3
NSW EPA (2014) General Solid Waste CT1 (No Leaching)	10	2000			120						172		10	14				4	10	288	600			1000
NSW EPA (2014) General Solid Waste SCC1 (with TCLP)	18	3600			216						310		18	25.2				7.2	18	518	1080			1800
NSW EPA (2014) Restricted Solid Waste CT2 (No Leaching)	40	8000			480						688		40	56				16	40	1152	2400			4000
NSW EPA (2014) Restricted Solid Waste SCC2 (with TCLP)	72	14400			864						1240		72	100.8				28.8	72	2073	4320			7200
NSW EPA (2014) Special Waste (Asbestos)																								
Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number																				
DUP03	SRT_BH095	0.1-0.4	16/10/2017	Field_D	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
DUP1	SRT_BH090	0.2-0.4	4/10/2017	Field_D	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G01_0.5-0.95	SRT_BH090	0.5-0.95	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RCD-G01_1.3	SRT_BH090	1.3-1.3	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G01_3.0-3.45	SRT_BH090	3-3.45	4/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G02_2.3-2.5	SRT_BH091	2.3-2.5	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	0.2	0.1	0.2	0.5	0.7
RCD-G03_1.25	SRT_BH092	1.25-1.25	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G03_6.0-6.45	SRT_BH092	6-6.45	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G04_0.8	SRT_BH093	0.8-0.8	4/10/2017	Normal	568310	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
RCD-G04_0.8	SRT_BH093	0.8-0.8	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G04_1.0-1.45	SRT_BH093	1-1.45	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G04_1.9	SRT_BH093	1.9-1.9	5/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	12/10/2017	Normal	567987	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G05_0.5-0.8	SRT_BH094	0.5-0.8	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G05_3.0-3.45	SRT_BH094	3-3.45	12/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	16/10/2017	Normal	567987	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G06_0.5-0.95	SRT_BH095	0.5-0.95	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G06_2.4-2.6	SRT_BH095	2.4-2.6	16/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G07_0.2-0.5	SRT_BH096	0.2-0.5	10/10/2017	Normal	567987	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	0.2	0.3	0.5
RCD-G07_0.5-0.95	SRT_BH096	0.5-0.95	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCD-G07_6.0-6.45	SRT_BH096	6-6.45	10/10/2017	Normal	567987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
RCG-G02_7.5-7.95	SRT_BH091	7.5-7.95	6/10/2017	Normal	566778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD681_0.2-0.5	SRT_LD681	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	<0.2	<0.3
SRT_LD681_1.5-1.6	SRT_LD681	1.5-1.6	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD681_3.5-4.0	SRT_LD681	3.5-4	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD682_0.05-0.2	SRT_LD682	0.05-0.2	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	-
SRT_LD682_0.5-0.95	SRT_LD682	0.5-0.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD682_2.0-2.45	SRT_LD682	2-2.45	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD682_3.5-3.95	SRT_LD682	3.5-3.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD683_0.05-0.15	SRT_LD683	0.05-0.15	13/10/2017	Normal	568142	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-	<0.1	<0.2	-
SRT_LD683_0.15-0.5	SRT_LD683	0.15-0.5	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
SRT_LD683_1.5-1.95	SRT_LD683	1.5-1.95	13/10/2017	Normal	568142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3

	Heavy Metal			PAH																		TCLP		
	Chromium (III+VI)	Lead	Nickel	Pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	PAHs (Sum of total) - Lab calc	pH (Final)	pH (Initial)	pH (after HCl)
	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pH Units	pH Units	pH Units
EQL	0.05	0.01	0.05	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.1	0.1	0.1
NSW EPA (2014) General Solid Waste TCLP1	5	5	2						40														
NSW EPA (2014) Restricted Solid Waste TCLP2	20	20	8						160														
Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Sample_Type	Lab_Report_Number																			
RCD-G01_0.2-0.4	SRT_BH090	0.2-0.4	4/10/2017	Normal	570031	-	-	-	2	<2	<2	<2	2	2	2	<2	2	<2	<2	2	<2	<2	<2	<2	12	10	8.9	2
RCD-G02_0.2-0.3	SRT_BH091	0.2-0.3	4/10/2017	Normal	570031	<0.05	<0.01	<0.05	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	11	9.7	2.1
RCD-G02_1.1-1.2	SRT_BH091	1.1-1.2	4/10/2017	Normal	570031	-	-	-	52	<2	4	7	28	32	31	15	23	28	4	52	<2	18	<2	20	314	8.7	8.6	2
RCD-G03_0.2-0.4	SRT_BH092	0.2-0.4	4/10/2017	Normal	570031	-	<0.01	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	7.4	7.6	1.9
RCD-G05_0.2-0.5	SRT_BH094	0.2-0.5	4/10/2017	Normal	570031	<0.05	<0.01	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	9	7.5	1.9
RCD-G06_0.1-0.4	SRT_BH095	0.1-0.4	4/10/2017	Normal	570031	-	<0.01	<0.05	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	10	9	1.9
SRT_LD682_0.2-0.5	SRT_LD682	0.2-0.5	4/10/2017	Normal	570031	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	8.1	1.9

									Field_ID	GWQD1	GWQT1	SRT_BH092_GW	SRT_BH094_GW
									Location_Code	SRT_BH092	SRT_BH092	SRT_BH092	SRT_BH094
									Sampled_Date_Time	14/11/2017	14/11/2017	14/11/2017	14/11/2017
				NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand			NEPM 2013 Table 1C GILs, Fresh Waters	NHMRC Recreational Guidelines 2008	Sydney Water Trade Waste Acceptance Standard	Field duplicate of SRT_BH092	Field duplicate of SRT_BH092		
Chem_Group	**ChemName**	**output unit**	**EQL**	2-4m	4-8m	>8m							
Inorganics	Electrical conductivity (lab)	µS/cm	1							-	-	16,000	9400
	pH (Lab)	pH Units	0.1						7-10	5	-	5.1	6.2
Metals	Arsenic (Filtered)	mg/L	0.001					0.1	1	<0.001	<0.001	<0.001	0.001
	Cadmium (Filtered)	mg/L	0.0002				0.0002	0.02	1	0.0005	0.0006	0.0006	<0.0002
	Chromium (III+VI) (Filtered)	mg/L	0.001						3	0.003	<0.001	0.005	<0.001
	Copper (Filtered)	mg/L	0.001				0.0014	20	5	0.035	0.037	0.036	<0.001
	Lead (Filtered)	mg/L	0.001				0.0034	0.1	2	0.004	0.004	0.004	<0.001
	Mercury (Filtered)	mg/L	0.0001				0.00006	0.01	0.03	<0.0001	<0.0001	<0.0001	<0.0001
	Nickel (Filtered)	mg/L	0.001				0.011	0.2	3	0.07	0.066	0.074	0.023
	Zinc (Filtered)	mg/L	0.005				0.008		5	0.27	0.32	0.29	0.044
PAHs	Pyrene	µg/L	1							<1	<1	<1	<1
	Acenaphthene	µg/L	1							<1	<1	<1	<1
	Acenaphthylene	µg/L	1							<1	<1	<1	<1
	Anthracene	µg/L	1							<1	<1	<1	<1
	Benz(a)anthracene	µg/L	1							<1	<1	<1	<1
	Benzo(a)pyrene	µg/L	1					0.1		<1	<0.5	<1	<1
	Benzo[b+j]fluoranthene	µg/L	1							<1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1							<1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1							<1	<1	<1	<1
	Chrysene	µg/L	1							<1	<1	<1	<1
	Dibenz(a,h)anthracene	µg/L	1							<1	<1	<1	<1
	Fluoranthene	µg/L	1							<1	<1	<1	<1
	Fluorene	µg/L	1							<1	<1	<1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1							<1	<1	<1	<1
	Naphthalene	µg/L	1	NL	NL	NL	16			<1	<5 - 1.1	<1	<1
	Phenanthrene	µg/L	1							<1	<1	<1	<1
	PAHs (Sum of total) - Lab calc	µg/L	1						50000	<1	1.1	<1	<1
	Benzo(a)pyrene TEQ (zero) - Lab Calc	µg/L	0.5							-	<0.5	-	-
TRH - NEPM 2013	C6-C10 minus BTEX (F1)	µg/L	20	6000	6000	7000				<20	20	40	<20
	C6 - C10 Fraction	µg/L	20							30	40	50	<20
	>C10-C16 minus Naphthalene (F2)	µg/L	50	NL	NL	NL				<50	<100	<50	<50
	>C10 - C16 Fraction	µg/L	50							<50	<100	<50	<50
	>C16 - C34 Fraction (F3)	µg/L	100							<100	120	<100	<100
	>C34 - C40 Fraction (F4)	µg/L	100							<100	<100	<100	<100
	>C10 - C40 (Sum of Total)	µg/L	100							-	120	-	-
TRH - NEPM 1999	C6 - C 9 Fraction	µg/L	20							<20	30	30	<20
	C10 - C14 Fraction	µg/L	50							<50	80	<50	<50
	C15 - C28 Fraction	µg/L	100							<100	100	<100	<100
	C29 - C36 Fraction	µg/L	100							<100	<50	<100	<100
	C10 - C36 (Sum of Total)	µg/L	100							<100	180	<100	<100
Phenols	2,4,5-trichlorophenol	µg/L	10							<10	-	<10	<10
	2,4,6-trichlorophenol	µg/L	10				3	200		<10	-	<10	<10
	2,4-dichlorophenol	µg/L	3				120	2000		<3	-	<3	<3
	2,4-dimethylphenol	µg/L	3							<3	-	<3	<3
	2,4-dinitrophenol	µg/L	30				45			<30	-	<30	<30
	2,6-dichlorophenol	µg/L	3							<3	-	<3	<3
	2-chlorophenol	µg/L	3				340	3000		<3	-	<3	<3
	2-methylphenol	µg/L	3							<3	-	<3	<3
	2-nitrophenol	µg/L	10							<10	-	<10	<10
	3-&4-methylphenol	µg/L	6							<6	-	<6	<6
	4,6-Dinitro-o-cyclohexyl phenol	µg/L	100							<100	-	<100	<100
	4-chloro-3-methylphenol	µg/L	10							<10	-	<10	<10
	4-nitrophenol	µg/L	30							<30	-	<30	<30
	Pentachlorophenol	µg/L	10				3.6	100		<10	-	<10	<10
	Phenol	µg/L	3				320			<3	-	<3	<3
	tetrachlorophenols	µg/L	30							<30	-	<30	<30
	Phenols (Total Halogenated)	µg/L	10							<10	-	<10	<10
	Phenols (Total Non Halogenated)	µg/L	100							<100	-	<100	<100
VOCs	1,1-dichloroethane	µg/L	1							-	-	<1	<1
	1,2,3-trichloropropane	µg/L	1							-	-	<1	<1
	1,2-dibromoethane	µg/L	1					10		-	-	<1	<1
	1,3,5-trimethylbenzene	µg/L	1							-	-	5	<1
	1,3-dichlorobenzene	µg/L	1				260			-	-	<1	<1
	2-butanone (MEK)	µg/L	1							-	-	<1	<1
	4-methyl-2-pentanone (MIBK)	µg/L	1							-	-	<1	<1
	Acetone	µg/L	1							-	-	<1	<1
	Allyl chloride	µg/L	1							-	-	<1	<1
	Bromodichloromethane	µg/L	1							-	-	<1	<1
	Bromoform	µg/L	1							-	-	<1	<1
	Carbon disulfide	µg/L	1							-	-	1	<1
	Chlorodibromomethane	µg/L	1							-	-	<1	<1
	Chloroethane	µg/L	1							-	-	<1	<1
	cis-1,3-dichloropropene	µg/L	1							-	-	<1	<1
	Dibromomethane	µg/L	1							-	-	<1	<1
	Iodomethane	µg/L	1							-	-	<1	<1
	TCE	µg/L	1							-	-	<1	<1
	Tetrachloroethene	µg/L	1					500		-	-	<1	<1
	trans-1,2-dichloroethene	µg/L	1							-	-	<1	<1
	trans-1,3-dichloropropene	µg/L	1							-	-	<1	<1
	Trichlorofluoromethane	µg/L	1							-	-	<1	<1
SVOCs	4,6-Dinitro-2-methylphenol	µg/L	30							<30	-	<30	<30
	EPN	µg/L	2							-	-	<2	<2
BTEXN	Benzene	µg/L	1	5000	5000	5000	950	10	100	<1	<1	<1	<1
	Toluene	µg/L	1	NL	NL	NL		8000	500	<1	<2	<1	<1
	Ethylbenzene	µg/L	1	NL	NL	NL		3000	1000	1	<2	1	<1
	Xylene (o)	µg/L	1				350			5	8	7	<1
	Xylene (m & p)	µg/L	2						1000	5	8	6	<2
	Xylene Total	µg/L	3	NL	NL	NL		6000		10	16	13	<3
	BTEX (Sum of Total) - Lab Calc	µg/L	1							-	16	-	-
OC Pesticides	Organochlorine pesticides EPAVic	µg/L	1							-	-	<1	<1
	Other organochlorine pesticides EPAVic	µg/L	1							-	-	<1	<1
	4,4-DDE	µg/L	0.1							-	-	<0.1	<0.1
	a-BHC	µg/L	0.1							-	-	<0.1	<0.1
	Aldrin	µg/L	0.1							-	-	<0.1	<0.1
	Aldrin + Dieldrin	µg/L	0.1					3		-	-	<0.1	<0.1
	b-BHC	µg/L	0.1							-	-	<0.1	<0.1
	chlordane	µg/L	1				0.03			-	-	<1	<1
	d-BHC	µg/L	0.1							-	-	<0.1	<0.1
	4,4 DDD	µg/L	0.1							-	-	<0.1	<0.1
	4,4 DDT	µg/L	0.1				0.006	90		-	-	<0.1	<0.1
	DDT+DDE+DDD - Lab Calc	µg/L	0.1							-	-	<0.1	<0.1
	Dieldrin	µg/L	0.1							-	-	<0.1	<0.1
	Endosulfan I	µg/L	0.1							-	-	<0.1	<0.1
	Endosulfan II	µg/L	0.1							-	-	<0.1	<0.1
	Endosulfan sulphate	µg/L	0.1							-	-	<0.1	<0.1
	Endrin	µg/L	0.1				0.01			-	-	<0.1	<0.1
	Endrin aldehyde	µg/L	0.1							-	-	<0.1	<0.1
	Endrin ketone	µg/L	0.1							-	-	<0.1	<0.1
	g-BHC (Lindane)	µg/L	0.1				0.2	100		-	-	<0.1	<0.1
	Heptachlor	µg/L	0.1				0.01	3		-	-	<0.1	<0.1
	Heptachlor epoxide	µg/L	0.1							-	-	<0.1	<0.1
	Hexachlorobenzene	µg/L	0.1							-	-	<0.1	<0.1
	Methoxychlor	µg/L	0.1					3000		-	-	<0.1	<0.1
	Toxaphene	µg/L	10				0.1			-	-	<10	<10
OP Pesticides	Tokuthion	µg/L	2							-	-	<2	<2
	Azinophos methyl	µg/L	2					300		-	-	<2	<2
	Bolstar (Sulprofos)	µg/L	2					100		-	-	<2	<2
	Chlorfenvinphos	µg/L	2							-	-	<2	<2
	Chlorpyrifos	µg/L	20				0.01	100		-	-	<20	<20

										Field_ID	GWQD1	GWQT1	SRT_BH092_GW	SRT_BH094_GW
										Location_Code	SRT_BH092	SRT_BH092	SRT_BH092	SRT_BH094
										Sampled_Date_Time	14/11/2017	14/11/2017	14/11/2017	14/11/2017
				NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand			NEPM 2013 Table 1C GILs, Fresh Waters	NHMRC Recreational Guidelines 2008	Sydney Water Trade Waste Acceptance Standard	Field duplicate of SRT_BH092	Field duplicate of SRT_BH092		
Chem_Group	ChemName	output unit	EQL	2-4m	4-8m	>8m							
	Chlorpyrifos-methyl	µg/L	2							-	-	<2	<2
	Coumaphos	µg/L	20							-	-	<20	<20
	Demeton-O	µg/L	2							-	-	<2	<2
	Demeton-S	µg/L	20							-	-	<20	<20
	Diazinon	µg/L	2				0.01	40		-	-	<2	<2
	Dichlorvos	µg/L	2					50		-	-	<2	<2
	Dimethoate	µg/L	2				0.15	70		-	-	<2	<2
	Disulfoton	µg/L	2					40		-	-	<2	<2
	Ethion	µg/L	2					40		-	-	<2	<2
	Ethoprop	µg/L	2					10		-	-	<2	<2
	Fenitrothion	µg/L	2				0.2	70		-	-	<2	<2
	Fensulfothion	µg/L	2					100		-	-	<2	<2
	Fenthion	µg/L	2					70		-	-	<2	<2
	Malathion	µg/L	2				0.05	700		-	-	<2	<2
	Merphos	µg/L	2							-	-	<2	<2
	Methyl parathion	µg/L	2					7		-	-	<2	<2
	Mevinphos (Phosdrin)	µg/L	2					50		-	-	<2	<2
	Monocrotophos	µg/L	2					20		-	-	<2	<2
	Naled (Dibrom)	µg/L	2							-	-	<2	<2
	Omethoate	µg/L	2					10		-	-	<2	<2
	Parathion	µg/L	2				0.004	200		-	-	<2	<2
	Phorate	µg/L	2							-	-	<2	<2
	Pyrazophos	µg/L	2					200		-	-	<2	<2
	Ronnel	µg/L	2							-	-	<2	<2
	Terbufos	µg/L	2					9		-	-	<2	<2
	Trichloronate	µg/L	2							-	-	<2	<2
	Tetrachlorvinphos	µg/L	2					1000		-	-	<2	<2
PCBs	Arochlor 1016	µg/L	1							-	-	<1	<1
	Arochlor 1221	µg/L	1							-	-	<1	<1
	Arochlor 1232	µg/L	1							-	-	<1	<1
	Arochlor 1242	µg/L	1				0.3			-	-	<1	<1
	Arochlor 1248	µg/L	1							-	-	<1	<1
	Arochlor 1254	µg/L	1				0.01			-	-	<1	<1
	Arochlor 1260	µg/L	1							-	-	<1	<1
	PCBs (Total)	µg/L	1							-	-	<0.1	<0.1
MAH	Total MAH	µg/L	3							-	-	27	<3
	1,2,4-trimethylbenzene	µg/L	1							-	-	5	<1
	Isopropylbenzene	µg/L	1							-	-	<1	<1
	Styrene	µg/L	1					300		-	-	<1	<1
Pesticides	Pirimiphos-methyl	µg/L	20					900		-	-	<20	<20
Halogenated Hydrod	Bromomethane	µg/L	1					10		-	-	<1	<1
	Dichlorodifluoromethane	µg/L	1							-	-	<1	<1
Herbicides	Dinoseb	µg/L	100							<100	-	<100	<100
Chlorinated Hydroca	Other chlorinated hydrocarbons (Total)	ug/L	5							-	-	<5	<5
	Chlorinated hydrocarbons EPAVic	µg/L	5							-	-	<5	<5
	1,1,1,2-tetrachloroethane	µg/L	1							-	-	<1	<1
	1,1,1-trichloroethane	µg/L	1							-	-	<1	<1
	1,1,2,2-tetrachloroethane	µg/L	1							-	-	<1	<1
	1,1,2-trichloroethane	µg/L	1				6500			-	-	<1	<1
	1,1-dichloroethene	µg/L	1					300		-	-	<1	<1
	1,2-dichlorobenzene	µg/L	1				160	15000		-	-	<1	<1
	1,2-dichloroethane	µg/L	1					30		-	-	<1	<1
	1,2-dichloropropane	µg/L	1							-	-	<1	<1
	1,3-dichloropropane	µg/L	1							-	-	<1	<1
	1,4-dichlorobenzene	µg/L	1				60	400		-	-	<1	<1
	4-chlorotoluene	µg/L	1							-	-	<1	<1
	Bromobenzene	µg/L	1							-	-	<1	<1
	Bromochloromethane	µg/L	1							-	-	<1	<1
	Carbon tetrachloride	µg/L	1							-	-	<1	<1
	Chlorobenzene	µg/L	1							-	-	<1	<1
	Chloroform	µg/L	5							-	-	<5	<5
	Chloromethane	µg/L	1							-	-	<1	<1
	cis-1,2-dichloroethene	µg/L	1							-	-	<1	<1
	Dichloromethane	µg/L	1					40		-	-	<1	<1
	Vinyl chloride	µg/L	1					3		-	-	<1	<1
Major Ions	Chloride	mg/L	1							-	-	4500	1900
	Sulphate	mg/L	5					5000		-	-	1200	1500

Appendix F
Table F5 Calculated RPD of soil field duplicate samples

Field Duplicates (soil)
Filter: ALL

SDG	6-Oct-17	6-Oct-17		16-Oct-17	16-Oct-17	
Field ID	RCD-G01_0.2-0.4	DUP1	**RPD**	RCD-G06_0.1-0.4	DUP03	**RPD**
Sampled Date/Time	4/10/2017	4/10/2017		16/10/2017	16/10/2017	
Chem_Group	**ChemName**	**Units**	**EQL**						
Inorganics	Moisture Content (dried @ 103°C)	%	1	9.5	6.8	33	**11**	**6.1**	**57**
Metals	Arsenic	mg/kg	2	5.3	6	12	13	12	8
	Cadmium	mg/kg	0.4	<0.4	<0.4	0	<0.4	<0.4	0
	Chromium (III+VI)	mg/kg	5	11	9.7	13	16	21	27
	Copper	mg/kg	5	16	14	13	42	53	23
	Lead	mg/kg	5	71	54	27	180	160	12
	Mercury	mg/kg	0.1	0.3	0.2	40	0.1	<0.1	0
	Nickel	mg/kg	5	<5	<5	0	41	68	50
	Zinc	mg/kg	5	96	66	37	120	140	15
PAHs	Pyrene	mg/kg	0.5	**5.3**	**<0.5**	**166**	**8.8**	**2.6**	**109**
	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	0.9	<0.5	57	1.2	<0.5	82
	Benz(a)anthracene	mg/kg	0.5	2.2	<0.5	126	4.6	1.3	112
	Benzo(a)pyrene	mg/kg	0.5	2.3	<0.5	129	**5.4**	**1.7**	**104**
	Benzo[b+j]fluoranthene	mg/kg	0.5	1.6	<0.5	105	4.1	1.2	109
	Benzo(k)fluoranthene	mg/kg	0.5	2.1	<0.5	123	4.2	1.4	100
	Benzo(g,h,i)perylene	mg/kg	0.5	1.6	<0.5	105	2.6	0.9	97
	Chrysene	mg/kg	0.5	2.3	<0.5	129	4.7	1.4	108
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	0.7	<0.5	33
	Fluoranthene	mg/kg	0.5	5	<0.5	164	**8.5**	**2.5**	**109**
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	1.2	<0.5	82	2.9	1	97
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	**6**	**<0.5**	**169**	3.4	1.1	102
	PAHs (Sum of total) - Lab calc	mg/kg	0.5	**31**	**<0.5**	**194**	**51.1**	**15.1**	**109**
	Benzo(a)pyrene TEQ (zero) - Lab Calc	mg/kg	0.5	3	<0.5	143	**7.8**	**2.2**	**112**
	Benzo(a)pyrene TEQ (half LOR) - Lab Calc	mg/kg	0.5	3.3	0.6	138	**7.8**	**2.5**	**103**
	Benzo(a)pyrene TEQ (LOR) - Lab Calc	mg/kg	0.5	3.5	1.2	98	**7.8**	**2.7**	**97**
TRH - NEPM 2013	C6-C10 minus BTEX (F1)	mg/kg	20	<20	<20	0	<20	<20	0
	C6 - C10 Fraction	mg/kg	20	<20	<20	0	<20	<20	0
	>C10-C16 minus Naphthalene (F2)	mg/kg	50	<50	<50	0	<50	<50	0
	>C10 - C16 Fraction	mg/kg	50	<50	<50	0	<50	<50	0
	>C16 - C34 Fraction (F3)	mg/kg	100	230	<100	79	470	180	89
	>C34 - C40 Fraction (F4)	mg/kg	100	<100	<100	0	190	130	38
›M 2013									
TRH - NEPM 1999	C6 - C 9 Fraction	mg/kg	20	<20	<20	0	<20	<20	0
	C10 - C14 Fraction	mg/kg	20	<20	<20	0	<20	<20	0
	C15 - C28 Fraction	mg/kg	50	170	62	93	330	120	93
	C29 - C36 Fraction	mg/kg	50	83	<50	50	240	130	59
	C10 - C36 (Sum of Total)	mg/kg	50	253	62	121	**570**	**250**	**78**
›M 1999									
BTEXN	Benzene	mg/kg	0.1				<0.1	<0.1	0
	Toluene	mg/kg	0.1				<0.1	<0.1	0
	Ethylbenzene	mg/kg	0.1				<0.1	<0.1	0
	Xylene (o)	mg/kg	0.1				<0.1	<0.1	0
	Xylene (m & p)	mg/kg	0.2				<0.2	<0.2	0
	Xylene Total	mg/kg	0.3				<0.3	<0.3	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix F
Table F6 Calculated RPD of groundwater field duplicate samples

Field Duplicates (water)
Filter: ALL

						ALSE-Melbourne		
	SDG	14-Nov-17	14-Nov-17		14-Nov-17	16-Nov-17		
	Field ID	SRT_BH092_GW	GWQD1	**RPD**	SRT_BH092_GW	GWQT1	**RPD**	
	Sampled Date/Time	14/11/2017	14/11/2017		14/11/2017	14/11/2017		
Chem_Group	**ChemName**	**Units**	**EQL**					
Inorganics	pH (Lab)	pH units	0.1	5.1	5	2	5.1		
Metals	Arsenic (Filtered)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Cadmium (Filtered)	mg/l	0.0002 : 0.0001 (Interlab)	0.0006	0.0005	18	0.0006	0.0006	0
	Chromium (III+VI) (Filtered)	mg/l	0.001	0.005	0.003	50	0.005	<0.001	133
	Copper (Filtered)	mg/l	0.001	0.036	0.035	3	0.036	0.037	3
	Lead (Filtered)	mg/l	0.001	0.004	0.004	0	0.004	0.004	0
	Mercury (Filtered)	mg/l	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
	Nickel (Filtered)	mg/l	0.001	0.074	0.07	6	0.074	0.066	11
	Zinc (Filtered)	mg/l	0.005	0.29	0.27	7	0.29	0.32	10
PAHs	Pyrene	µg/l	1	<1	<1	0	<1	<1	0
	Acenaphthene	µg/l	1	<1	<1	0	<1	<1	0
	Acenaphthylene	µg/l	1	<1	<1	0	<1	<1	0
	Anthracene	µg/l	1	<1	<1	0	<1	<1	0
	Benz(a)anthracene	µg/l	1	<1	<1	0	<1	<1	0
	Benzo(a)pyrene	µg/l	1 : 0.5 (Interlab)	<1	<1	0	<1	<0.5	0
	Benzo[b+j]fluoranthene	µg/l	1	<1	<1	0	<1	<1	0
	Benzo(k)fluoranthene	µg/l	1	<1	<1	0	<1	<1	0
	Benzo(g,h,i)perylene	µg/l	1	<1	<1	0	<1	<1	0
	Chrysene	µg/l	1	<1	<1	0	<1	<1	0
	Dibenz(a,h)anthracene	µg/l	1	<1	<1	0	<1	<1	0
	Fluoranthene	µg/l	1	<1	<1	0	<1	<1	0
	Fluorene	µg/l	1	<1	<1	0	<1	<1	0
	Indeno(1,2,3-c,d)pyrene	µg/l	1	<1	<1	0	<1	<1	0
	Naphthalene	µg/l	10 : 5 (Interlab)	<10	<10	0	<10	<5 - 1.1	0
	Naphthalene	µg/l	1 : 5 (Interlab)	<1	<1	0	<1	<5 - 1.1	10
	Phenanthrene	µg/l	1	<1	<1	0	<1	<1	0
	PAHs (Sum of total) - Lab calc	µg/l	1 : 0.5 (Interlab)	<1	<1	0	<1	1.1	10
TRH - NEPM 2013	C6-C10 minus BTEX (F1)	µg/l	20	40	<20	67	40	20	67
	C6 - C10 Fraction	µg/l	20	50	30	50	50	40	22
	>C10-C16 minus Naphthalene (F2)	µg/l	50 : 100 (Interlab)	<50	<50	0	<50	<100	0
	>C10 - C16 Fraction	µg/l	50 : 100 (Interlab)	<50	<50	0	<50	<100	0
	>C16 - C34 Fraction (F3)	µg/l	100	<100	<100	0	<100	120	18
	>C34 - C40 Fraction (F4)	µg/l	100	<100	<100	0	<100	<100	0
M 2013									
TRH - NEPM 1999	C6 - C 9 Fraction	µg/l	20	30	<20	40	30	30	0
	C10 - C14 Fraction	µg/l	50	<50	<50	0	<50	80	46
	C15 - C28 Fraction	µg/l	100	<100	<100	0	<100	100	0
	C29 - C36 Fraction	µg/l	100 : 50 (Interlab)	<100	<100	0	<100	<50	0
	C10 - C36 (Sum of Total)	µg/l	100 : 50 (Interlab)	<100	<100	0	<100	180	57
M 1999									
Phenols	2,4,5-trichlorophenol	µg/l	10	<10	<10	0	<10		
	2,4,6-trichlorophenol	µg/l	10	<10	<10	0	<10		
	2,4-dichlorophenol	µg/l	3	<3	<3	0	<3		
	2,4-dimethylphenol	µg/l	3	<3	<3	0	<3		
	2,4-dinitrophenol	µg/l	30	<30	<30	0	<30		
	2,6-dichlorophenol	µg/l	3	<3	<3	0	<3		
	2-chlorophenol	µg/l	3	<3	<3	0	<3		
	2-methylphenol	µg/l	3	<3	<3	0	<3		
	2-nitrophenol	µg/l	10	<10	<10	0	<10		
	3-&4-methylphenol	µg/l	6	<6	<6	0	<6		
	4,6-Dinitro-o-cyclohexyl phenol	µg/l	100	<100	<100	0	<100		
	4-chloro-3-methylphenol	µg/l	10	<10	<10	0	<10		
	4-nitrophenol	µg/l	30	<30	<30	0	<30		
	Pentachlorophenol	µg/l	10	<10	<10	0	<10		
	Phenol	µg/l	3	<3	<3	0	<3		
	tetrachlorophenols	µg/l	30	<30	<30	0	<30		
	Phenols (Total Halogenated)	µg/l	10	<10	<10	0	<10		
	Phenols (Total Non Halogenated)	µg/l	100	<100	<100	0	<100		
SVOCs	4,6-Dinitro-2-methylphenol	µg/l	30	<30	<30	0	<30		
BTEXN	Benzene	µg/l	1	<1	<1	0	<1	<1	0
	Toluene	µg/l	1 : 2 (Interlab)	<1	<1	0	<1	<2	0
	Ethylbenzene	µg/l	1 : 2 (Interlab)	1	1	0	1	<2	0
	Xylene (o)	µg/l	1 : 2 (Interlab)	7	5	33	7	8	13
	Xylene (m & p)	µg/l	2	6	5	18	6	8	29
	Xylene Total	µg/l	3 : 2 (Interlab)	13			13	16	21
Herbicides	Dinoseb	µg/l	100	<100	<100	0	<100		

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix F
Table F7 Trip blank, trip spike and rinsate sample results

Field Blanks (soil)
Filter: ALL

SDG	6-Oct-17	6-Oct-17	
Field ID	TB	TS	
Sampled_Date/Time	4/10/2017	4/10/2017	
Sample Type	Trip_B	Trip_S (reported in percentage)	

Method_Type	ChemName	Units	EQL		
Volatile	Benzene	mg/kg	0.1	<0.1	120
	Toluene	mg/kg	0.1	<0.1	110
	Ethylbenzene	mg/kg	0.1	<0.1	100
	Xylene (o)	mg/kg	0.1	<0.1	100
	Xylene (m & p)	mg/kg	0.2	<0.2	100
	Xylene Total	mg/kg	0.3	<0.3	110

Field Blanks (water)
Filter: ALL

SDG	14-Nov-17	14-Nov-17	14-Nov-17	
Field ID	GWQR1	TRIP BLANK	TRIP SPIKE	
Sampled_Date/Time	14/11/2017	14/11/2017	14/11/2017	
Sample Type	Rinsate	Trip_B	Trip_S (reported in percentage)	

Chem_Group	ChemName	Units	EQL			
Volatile	Benzene	µg/l	1	-	<1	95
	Toluene	µg/l	1	-	<1	90
	Ethylbenzene	µg/l	1	-	<1	93
	Xylene (o)	µg/L	1	-	<1	89
	Xylene (m & p)	µg/l	2	-	<2	92
	Xylene Total	µg/l	2	-	<3	90
Metals	Arsenic	mg/l	0.001	<0.001	-	-
	Cadmium	mg/l	0.0002	<0.0002	-	-
	Chromium (III+VI)	mg/l	0.001	<0.001	-	-
	Copper	mg/l	0.001	<0.001	-	-
	Lead	mg/l	0.001	<0.001	-	-
	Mercury	mg/l	0.0001	<0.0001	-	-
	Nickel	mg/l	0.001	<0.001	-	-
	Zinc	mg/l	0.005	<0.005	-	-

Appendix G – Acid Sulfate Soils Result Tables

Table G1 - Summary of ASS Screening, Chromium Reducible Sulfur and SPOCAS Testing

Borehole	Depth (m)	Material Description	pH_F	pH_{FOX}	pH_F - pH_{FOX}	Reac-tion Rate [6]	Chromium Reducible Sulfur			SPOCAS					S_{KCl}
							SCr		Liming rate	S_{POS}	TPA	TSA	TAA	Liming rate	
			pH units	pH units	pH units		%w/w	mole H+/t	kg $CaCO_3$	%w/w S	mole H+/t	mole H+/t	mole H+/t	kg $CaCO_3$	%w/w
SRT_BH093	1.9	Clay (residual)	6.1	3.5	*2.6*	4	0.013	8	2.6	0.04	40	13	27	4	0.02
SRT_BH093	2.5-2.95	Clay (residual)	5.8	4.2	*1.6*	2	-	-	-	-	-	-	-	-	-
SRT_BH093	3.5	Clay (residual)	6	4.3	*1.7*	3	-	-	-	-	-	-	-	-	-
SRT_BH093	4.0-4.45	Clay (residual)	*5*	3.2	*1.8*	2	-	-	-	-	-	-	-	-	-
SRT_BH091	1.5-1.95	Clay (residual)	6.3	4.7	*1.6*	4	-	-	-	-	-	-	-	-	-
SRT_BH091	2.3-2.5	Clay (residual)	6.8	5	*1.8*	3	< 0.005	< 3	< 1	0.03	< 2	< 2	5.3	2	< 0.02
SRT_BH091	4.5-4.95	Clay (residual)	7.4	5.7	*1.7*	1	-	-	-	-	-	-	-	-	-
SRT_BH092	1.5-1.95	Clay (residual)	*5.4*	4.3	*1.1*	2	-	-	-	-	-	-	-	-	-
SRT_BH092	3.0-3.45	Clay (residual)	*4.7*	3.6	*1.1*	2	< 0.005	< 3	3.9	0.02	55	3	52	5	0.07
SRT_BH092	4.5-4.95	Clay (residual)	*4.7*	3.1	*1.6*	2	-	-	-	-	-	-	-	-	-
SRT_BH092	6.0-6.45	Clay (residual)	6.2	6.6	-0.4	4	-	-	-	-	-	-	-	-	-
SRT_BH096	1.5-1.95	Clay (residual)	*4.7*	3.6	*1.1*	2	-	-	-	-	-	-	-	-	-
SRT_BH096	3.0-3.45	Clay (residual)	*5.2*	4	*1.2*	2	-	-	-	-	-	-	-	-	-
SRT_BH096	6.0-6.45	Clay (residual)	6.1	4.4	*1.7*	2	-	-	-	-	-	-	-	-	-
SRT_BH094	0.5-0.8	Clay (alluvium)	7.1	5	*2.1*	4	0.017	11	1.4	0.05	< 2	< 2	8.2	3	< 0.02
SRT_BH094	1.5-1.95	Clay (residual)	6.2	4.1	*2.1*	4	-	-	-	-	-	-	-	-	-
SRT_BH094	3.0-3.45	Clay (residual)	6.3	4.7	*1.6*	2	-	-	-	-	-	-	-	-	-
SRT_BH094	4.5-4.95	Clay (residual)	6.9	5.6	*1.3*	2	-	-	-	-	-	-	-	-	-
SRT_BH095	1.5-1.95	Clay (residual)	6.5	5	*1.5*	2	-	-	-	-	-	-	-	-	-
SRT_BH095	2.4-2.6	Clay (residual)	7.5	4.7	*2.8*	4	-	-	-	-	-	-	-	-	-
SRT_BH095	3.0-3.45	Clay (residual)	7.5	6.1	*1.4*	3	-	-	-	-	-	-	-	-	-
SRT_BH095	3.9-4.1	Clay (residual)	7.9	6.2	*1.7*	3	-	-	-	-	-	-	-	-	-
SRT_BH095	4.5-4.95	Clay (residual)	7.7	6.4	*1.3*	3	-	-	-	-	-	-	-	-	-
SRT_LD681	2.0-2.45	Clay (residual)	*5*	3.7	*1.3*	2	-	-	-	-	-	-	-	-	-
SRT_LD681	2.9-3.0	Clay (residual)	*5.3*	4.3	1	2	< 0.005	< 3	1.5	< 0.02	18	< 2	20	2	< 0.02
SRT_LD681	3.5-3.95	Clay (residual)	*5.2*	4.3	0.9	2	-	-	-	-	-	-	-	-	-
SRT_LD683	1.5-1.95	Clay (residual)	5.8	4	*1.8*	4	-	-	-	-	-	-	-	-	-
SRT_LD683	3.0-3.5	Clay (residual)	5.9	4.1	*1.8*	3	0.01	6	2.6	0.03	35	8	28	4	< 0.02
SRT_LD683	3.5-4.0	Clay (residual)	5.5	4.1	*1.4*	2	-	-	-	-	-	-	-	-	-
Guideline Values															
ASSMAC (1998) Potential Acid Sulfate Soil Indicator Value			4 - 5.5 [1]	< 3 [3]	1 [4]	-	-	-	-	-	-	-	-	-	-
ASSMAC (1998) Actual Acid Sulfate Soil Indicator Value			≤ 4 [2]	-	-	-	-	-	-	-	-	-	-	-	-
ASSMAC (1998) Action Criteria - Fine soils (1 - 1000 tonnes)			-	-	-	-	0.10	62	-	0.10	62	62	-	-	-
ASSMAC (1998) Action Criteria - Fine soils (>1000 tonnes) [5]			-	-	-	-	0.03	18	-	0.03	18	18	-	-	-

Notes to Table:

1 - pH values >4 and <5.5 are acid and may be the result of some previous or limited oxidation of sulfides, but is not confirmatory of actual acid sulfate soils

2 - pH readings of pH≤4, indicates that actual acid sulfate soils are present with the sulfides having been oxidized in the past, resulting in acid soils (and soil pore water)

3 - The lower the final pH_{FOX} value is, the better the indication of a positive result.

» If the pH_{FOX} < 3 and there was a strong reaction to the peroxide, there is a high level of certainty of a potential acid sulfate soils. The more the pH $_{FOX}$ drops below 3, the more positive the presence of sulfides.

» A pH_{FOX} 3-4 is less positive and laboratory analyses are needed to confirm if sulfides are present.

» For pH_{FOX} 4-5 the test is neither positive nor negative. Sulfides may be present either in small quantities and be poorly reactive under quick test field conditions.

» For pH_{FOX} >5 and little or no drop in pH from the field value, little net acid generating ability is indicated.

4 - If the pH_F value is at least one unit below field pH_{FOX}, it may indicate potential acid sulfate soils. The greater the difference between the two measurements, the more indicative the value is of a potential acid sulfate soils.

5 Fine soils comprise medium to heavy clays and silty clays - Approximate clay content (% < 0.002mm) ≥ 40%

6 - Reaction Rate: 1 = no reaction to slight; 2 = moderate reaction; 3 = strong reation with persistent froth; and, 4 = extrement reaction.

Acid Sulfate Soil Trigger Values

Bold Indicates the laboratory result is within the specified range of the ASSMAC (1998) Actual Acid Sulfate Soil Indicator Values

Italics Indicates the laboratory result either exceeds or is within the specified range of the ASSMAC (1998) Potential Acid Sulfate Soil Indicator Values

Indicates exceedance of the ASSMAC (1998) Action Criteria triggering the need to prepare a ASS Management Plan

Indicates the requirement for localised lime treatment of the material, that is, when the laboratory results for SCr (%w/w) > 0.03 and the SCr (mole H=/t) > 18

Appendix H – Chain of Custody Documentation and Laboratory Analytical Reports

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)	pH_F and pH_{FOX}	SPOCAS and Cr reducible	TCLP	Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals
1	RCD-G01_0.2-0.4	4/10/2017	soil		x		x	x							
2	RCD-G01_0.5-0.95	4/10/2017	soil		x										
3	RCD-G01_1.3	4/10/2017	soil				x								
4	RCD-G01_1.5-1.95	4/10/2017	soil												
5	RCD-G01_2.3	4/10/2017	soil												
6	RCD-G01_3.0-3.45	4/10/2017	soil				x								
7	RCD-G01_4.5-4.95	4/10/2017	soil												
8	DUP1	4/10/2017	soil									x			
9	RCD-G04_0.8	5/10/2017	soil		x		x	x							
10	RCD-G04_1.0-1.45	5/10/2017	soil		x		x					x			
11	RCD-G04_1.9	5/10/2017	soil				x								
12	RCD-G04_2.5-2.95	5/10/2017	soil												
13	RCD-G04_3.5	5/10/2017	soil												
14	RCD-G04_4.0-4.45	5/10/2017	soil												
15	DUP2	5/10/2017	soil												
16															

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag	Sample comments:
1							1		
2							1		
3							1		
4							1		
5							1		
6							1		
7							1		
8							1		
9							1		
10							1	1	
11							1	1	
12								1	
13								1	
14							1		
15							1		
16									

Relinquished By: Henry Luo
Date & Time : 5/10/2017 17:10
Signature:

Laboratory Staff
Received By:
Date & Time : 6/10 3:40pm
Signature:

Turn around time
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment
☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival: 28

Report number: 566778

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID : 170615GHDN**
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)			pH F and pH FOX	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	RCD-G02_0.2-0.3	6/10/2017	soil		x		x	x																
2	RCD-G02_0.35-0.45	6/10/2017	soil																					
3	RCD-G02_0.5-0.95	6/10/2017	soil																					
4	RCD-G02_1.1-1.2	6/10/2017	soil		x		x																	
5	RCD-G02_1.5-1.95	6/10/2017	soil																					
6	RCD-G02_2.3-2.5	6/10/2017	soil				x																	
7	RCD-G02_3.0-3.45	6/10/2017	soil																					
8	RCD-G02_4.5-4.95	6/10/2017	soil																					
9	RCG-G02_6.0-6.45	6/10/2017	soil																					
10	RCG-G02_7.5-7.95	6/10/2017	soil	x																				
11	RCD-G03_0.2-0.4	6/10/2017	soil		x		x	x																
12	RCD-G03_0.5-0.95	6/10/2017	soil																					
13	RCD-G03_1.25	6/10/2017	soil				x																	
14	RCD-G03_1.5-1.95	6/10/2017	soil																					
15	RCD-G03_3.0-3.45	6/10/2017	soil																					
16	RCG-G03_4.5-4.95	6/10/2017	soil																					

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1

Sample comments:

Laboratory Staff

Relinquished By: Henry Luo	**Received By:**
Date & Time : 6/10/2017 17:10	**Date & Time :**
Signature:	**Signature:**

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal

Courier Consignment # :

Temperature on arrival:

Report number:

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID : 179615GHDN**
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)			pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
				Analytes																					
1	RCD-G03_6.0-6.45	6/10/2017	soil	x																					
2	TB		soil														x								
3	TS		soil																						
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag	Sample comments:
						1	1	
				1				
				1				

Relinquished By: Henry Luo	Laboratory Staff Received By:	Turn around time	Method Of Shipment	Temperature on arrival:
Date & Time : 6/10/2017 17:10	Date & Time :	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☑ Courier	Report number:
Signature:	Signature:	5 DAY ☑ 10 DAY ☐ Other:	☐ Hand Delivered ☐ Postal Courier Consignment # :	

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention:	Kamal Kamalarasa
Report	566778-V2-AID
Project Name	S2B PORTION 5
Project ID	21 25491 53
Received Date	Oct 06, 2017
Date Reported	Oct 17, 2017

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS4964 method for inhomogeneous samples is around 0.1 g/kg (0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis where required, this is considered to be at the nominal reporting limit of 0.01 % (w / w).The examination of large sample sizes(500 mL is recommended) may improve the likelihood of identifying ACM in the > 2mm fraction.The NEPM screening level of 0.001 % (w / w) asbestos in soil for FA(friable asbestos) and AF(asbestos fines) then applies where they are able to be quantified by gravimetric procedures.This quantitative screening is not generally applicable to FF(free fibres) and results of Trace Analysis are referred. *NOTE: NATA News March 2014, p.7, states in relation to AS4964: "This is a qualitative method with a nominal reporting limit of 0.01%" and that currently in Australia "there is no validated method available for the quantification of asbestos". Accordingly, NATA Accreditation does not cover the performance of this service (indicated with an asterisk).* *This report is consistent with the analytical procedures and reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended) and the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009, including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil, June 2011.*

Project Name S2B PORTION 5
Project ID 21 25491 53
Date Sampled Oct 04, 2017 to Oct 06, 2017
Report 566778-V2-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
RCD-G01_0.2-0.4	17-Oc09166	Oct 04, 2017	Approximate Sample 78g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
RCD-G01_0.5-0.95	17-Oc09167	Oct 04, 2017	Approximate Sample 67g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
RCD-G04_0.8	17-Oc09174	Oct 05, 2017	Approximate Sample 70g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
RCD-G04_1.0-1.45	17-Oc09175	Oct 05, 2017	Approximate Sample 62g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
RCD-G02_0.2-0.3	17-Oc09190	Oct 06, 2017	Approximate Sample 76g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
RCD-G02_1.1-1.2	17-Oc09193	Oct 06, 2017	Approximate Sample 63g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
RCD-G03_0.2-0.4	17-Oc09200	Oct 06, 2017	Approximate Sample 60g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Oct 09, 2017	Indefinite

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NATA # 1261 Site # 20794

Perth
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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 5
Project ID: 21 25491 53

Order No.:
Report #: 566778
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 6, 2017 5:00 PM
Due: Oct 13, 2017
Priority: 5 Day
Contact Name: Kamal Kamalarasa

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail	Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	RCD-G01_0.2-0.4	Oct 04, 2017		Soil	S17-Oc09166	X							X	X			X
2	RCD-G01_0.5-0.95	Oct 04, 2017		Soil	S17-Oc09167	X											
3	RCD-G01_1.3	Oct 04, 2017		Soil	S17-Oc09168									X			X
4	RCD-G01_1.5-1.95	Oct 04, 2017		Soil	S17-Oc09169			X									
5	RCD-G01_2.3	Oct 04, 2017		Soil	S17-Oc09170			X									
6	RCD-G01_3.0-3.45	Oct 04, 2017		Soil	S17-Oc09171									X			X
7	RCD-G01_4.5-	Oct 04, 2017		Soil	S17-Oc09172			X									

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Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	4.95																
8	DUP1	Oct 04, 2017		Soil	S17-Oc09173					X	X			X	X		
9	RCD-G04_0.8	Oct 05, 2017		Soil	S17-Oc09174	X							X	X			X
10	RCD-G04_1.0-1.45	Oct 05, 2017		Soil	S17-Oc09175	X								X	X		X
11	RCD-G04_1.9	Oct 05, 2017		Soil	S17-Oc09176									X			X
12	RCD-G04_2.5-2.95	Oct 05, 2017		Soil	S17-Oc09177			X									
13	RCD-G04_3.5	Oct 05, 2017		Soil	S17-Oc09178			X									
14	RCD-G04_4.0-4.45	Oct 05, 2017		Soil	S17-Oc09179			X									
15	DUP2	Oct 05, 2017		Soil	S17-Oc09180			X									
16	RCD-G02_0.2-	Oct 06, 2017		Soil	S17-Oc09190	X							X	X			X

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Received: Oct 6, 2017 5:00 PM
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Contact Name: Kamal Kamalarasa

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	0.3																
17	RCD-G02_0.35-0.45	Oct 06, 2017		Soil	S17-Oc09191			X									
18	RCD-G02_0.5-0.95	Oct 06, 2017		Soil	S17-Oc09192			X									
19	RCD-G02_1.1-1.2	Oct 06, 2017		Soil	S17-Oc09193	X								X			X
20	RCD-G02_1.5-1.95	Oct 06, 2017		Soil	S17-Oc09194			X									
21	RCD-G02_2.3-2.5	Oct 06, 2017		Soil	S17-Oc09195									X			X
22	RCD-G02_3.0-3.45	Oct 06, 2017		Soil	S17-Oc09196		X										
23	RCD-G02_4.5-	Oct 06, 2017		Soil	S17-Oc09197			X									

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Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	4.95																
24	RCG-G02_6.0-6.45	Oct 06, 2017		Soil	S17-Oc09198			X									
25	RCG-G02_7.5-7.95	Oct 06, 2017		Soil	S17-Oc09199									X		X	
26	RCD-G03_0.2-0.4	Oct 06, 2017		Soil	S17-Oc09200	X							X	X			X
27	RCD-G03_0.5-0.95	Oct 06, 2017		Soil	S17-Oc09201			X									
28	RCD-G03_1.25	Oct 06, 2017		Soil	S17-Oc09202									X			X
29	RCD-G03_1.5-1.95	Oct 06, 2017		Soil	S17-Oc09203			X									
30	RCD-G03_3.0-	Oct 06, 2017		Soil	S17-Oc09204			X									

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Contact Name: Kamal Kamalarasa

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	3.45																
31	RCG-G03_4.5-4.95	Oct 06, 2017		Soil	S17-Oc09205			X									
32	RCD-G03_6.0-6.45	Oct 06, 2017		Soil	S17-Oc09206									X		X	
33	TB	Oct 04, 2017		Soil	S17-Oc09207				X			X					
34	TS	Oct 04, 2017		Soil	S17-Oc09208				X			X					
Test Counts						7	1	16	2	1	1	2	4	14	2	2	11

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substatntial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

This report has been revised (V2) to amend Sample IDs and Sample Dates.

The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

eurofins | mgt

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
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NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Kamal Kamalarasa**

Report **566778-S-V2**
Project name S2B PORTION 5
Project ID 21 25491 53
Received Date Oct 06, 2017

Client Sample ID			**RCD-G01_0.2-0.4**	**RCD-G01_1.3**	**RCD-G01_3.0-3.45**	**DUP1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09166**	**S17-Oc09168**	**S17-Oc09171**	**S17-Oc09173**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	170	80	< 50	62
TRH C29-C36	50	mg/kg	83	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	253	80	< 50	62
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	118	144	91	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	230	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	3.0	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	3.3	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	3.5	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	0.9	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	2.2	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	2.3	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.6	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	1.6	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	2.1	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	2.3	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			RCD-G01_0.2-0.4	RCD-G01_1.3	RCD-G01_3.0-3.45	DUP1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09166**	**S17-Oc09168**	**S17-Oc09171**	**S17-Oc09173**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	5.0	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	1.2	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	6.0	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	5.3	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	31	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	96	93	113	110
p-Terphenyl-d14 (surr.)	1	%	96	95	114	107
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	64	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	59	-	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Bolstar	0.2	mg/kg	< 0.2	-	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	-
Coumaphos	2	mg/kg	< 2	-	-	-
Demeton-S	0.2	mg/kg	< 0.2	-	-	-
Demeton-O	0.2	mg/kg	< 0.2	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Dichlorvos	0.2	mg/kg	< 0.2	-	-	-
Dimethoate	0.2	mg/kg	< 0.2	-	-	-

Client Sample ID			RCD-G01_0.2-0.4	RCD-G01_1.3	RCD-G01_3.0-3.45	DUP1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09166**	**S17-Oc09168**	**S17-Oc09171**	**S17-Oc09173**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Disulfoton	0.2	mg/kg	< 0.2	-	-	-
EPN	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.2	mg/kg	< 0.2	-	-	-
Ethoprop	0.2	mg/kg	< 0.2	-	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	-
Fenitrothion	0.2	mg/kg	< 0.2	-	-	-
Fensulfothion	0.2	mg/kg	< 0.2	-	-	-
Fenthion	0.2	mg/kg	< 0.2	-	-	-
Malathion	0.2	mg/kg	< 0.2	-	-	-
Merphos	0.2	mg/kg	< 0.2	-	-	-
Methyl parathion	0.2	mg/kg	< 0.2	-	-	-
Mevinphos	0.2	mg/kg	< 0.2	-	-	-
Monocrotophos	2	mg/kg	< 2	-	-	-
Naled	0.2	mg/kg	< 0.2	-	-	-
Omethoate	2	mg/kg	< 2	-	-	-
Phorate	0.2	mg/kg	< 0.2	-	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Pyrazophos	0.2	mg/kg	< 0.2	-	-	-
Ronnel	0.2	mg/kg	< 0.2	-	-	-
Terbufos	0.2	mg/kg	< 0.2	-	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	-
Tokuthion	0.2	mg/kg	< 0.2	-	-	-
Trichloronate	0.2	mg/kg	< 0.2	-	-	-
Triphenylphosphate (surr.)	1	%	94	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1232	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1242	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1248	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1254	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1260	0.5	mg/kg	< 0.5	-	-	-
Total PCB*	0.5	mg/kg	< 0.5	-	-	-
Dibutylchlorendate (surr.)	1	%	64	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	59	-	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	-
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	< 1	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	< 1	< 1	-
Pentachlorophenol	1.0	mg/kg	< 1	< 1	< 1	-
Tetrachlorophenols - Total	1.0	mg/kg	< 1	< 1	< 1	-
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	-

Client Sample ID			RCD-G01_0.2-0.4	RCD-G01_1.3	RCD-G01_3.0-3.45	DUP1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09166**	**S17-Oc09168**	**S17-Oc09171**	**S17-Oc09173**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
2-Nitrophenol	1	mg/kg	< 1	< 1	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	-
Dinoseb	20	mg/kg	< 20	< 20	< 20	-
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	-
Phenol-d6 (surr.)	1	%	108	99	108	-
Heavy Metals						
Arsenic	2	mg/kg	5.3	4.4	12	6.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	9.7	< 5	9.7
Copper	5	mg/kg	16	11	13	14
Lead	5	mg/kg	71	25	9.6	54
Mercury	0.1	mg/kg	0.3	0.1	< 0.1	0.2
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	96	45	< 5	66
% Moisture	1	%	9.5	5.7	21	6.8

Client Sample ID			RCD-G04_0.8	RCD-G04_1.0-1.45	RCD-G04_1.9	RCD-G02_0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09174**	**S17-Oc09175**	**S17-Oc09176**	**S17-Oc09190**
Date Sampled			**Oct 05, 2017**	**Oct 05, 2017**	**Oct 05, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	21	61	< 20	< 20
TRH C15-C28	50	mg/kg	690	2400	99	310
TRH C29-C36	50	mg/kg	490	3800	66	320
TRH C10-36 (Total)	50	mg/kg	1201	6261	165	630
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	106	92	52	138

Client Sample ID			RCD-G04_0.8	RCD-G04_1.0-1.45	RCD-G04_1.9	RCD-G02_0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09174**	**S17-Oc09175**	**S17-Oc09176**	**S17-Oc09190**
Date Sampled			**Oct 05, 2017**	**Oct 05, 2017**	**Oct 05, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	160	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	160	< 50	< 50
TRH >C16-C34	100	mg/kg	1000	4700	140	530
TRH >C34-C40	100	mg/kg	270	2700	< 100	160
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	0.8	< 0.5	< 0.5	2.8
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.1	0.6	0.6	3.1
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.3	1.2	1.2	3.3
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.2
Benz(a)anthracene	0.5	mg/kg	0.5	< 0.5	< 0.5	2.2
Benzo(a)pyrene	0.5	mg/kg	0.6	< 0.5	< 0.5	2.1
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	0.6	< 0.5	< 0.5	1.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.1
Benzo(k)fluoranthene	0.5	mg/kg	0.6	< 0.5	< 0.5	2.0
Chrysene	0.5	mg/kg	0.6	< 0.5	< 0.5	2.2
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.2	< 0.5	< 0.5	6.1
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.0
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.7	< 0.5	< 0.5	4.6
Pyrene	0.5	mg/kg	1.0	< 0.5	< 0.5	5.6
Total PAH*	0.5	mg/kg	5.8	0.5	< 0.5	29.6
2-Fluorobiphenyl (surr.)	1	%	97	117	100	103
p-Terphenyl-d14 (surr.)	1	%	99	117	104	105
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	< 0.05
a-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
Aldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
b-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
d-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	-	1.1
Endosulfan I	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	< 0.05

Client Sample ID			RCD-G04_0.8	RCD-G04_1.0-1.45	RCD-G04_1.9	RCD-G02_0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09174**	**S17-Oc09175**	**S17-Oc09176**	**S17-Oc09190**
Date Sampled			**Oct 05, 2017**	**Oct 05, 2017**	**Oct 05, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	-	-	< 0.2
Toxaphene	1	mg/kg	< 1	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	1.1
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	1.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	98	-	-	91
Tetrachloro-m-xylene (surr.)	1	%	95	-	-	90
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Bolstar	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Coumaphos	2	mg/kg	< 2	-	-	< 2
Demeton-S	0.2	mg/kg	< 0.2	-	-	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	-	-	< 0.2
Diazinon	0.2	mg/kg	< 0.2	-	-	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	-	-	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	-	-	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	-	-	< 0.2
EPN	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethion	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fenthion	0.2	mg/kg	< 0.2	-	-	< 0.2
Malathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Merphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Monocrotophos	2	mg/kg	< 2	-	-	< 2
Naled	0.2	mg/kg	< 0.2	-	-	< 0.2
Omethoate	2	mg/kg	< 2	-	-	< 2
Phorate	0.2	mg/kg	< 0.2	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	-	-	< 0.2
Ronnel	0.2	mg/kg	< 0.2	-	-	< 0.2
Terbufos	0.2	mg/kg	< 0.2	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	-	-	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	97	-	-	102

Client Sample ID			RCD-G04_0.8	RCD-G04_1.0-1.45	RCD-G04_1.9	RCD-G02_0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09174**	**S17-Oc09175**	**S17-Oc09176**	**S17-Oc09190**
Date Sampled			**Oct 05, 2017**	**Oct 05, 2017**	**Oct 05, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	-	-	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibutylchlorendate (surr.)	1	%	98	-	-	91
Tetrachloro-m-xylene (surr.)	1	%	95	-	-	90
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1	< 1	< 1	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	81	88	91	92
Heavy Metals						
Arsenic	2	mg/kg	11	6.6	12	22
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	1.5
Chromium	5	mg/kg	30	18	10	100
Copper	5	mg/kg	25	12	17	96
Lead	5	mg/kg	79	23	35	140
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	11	< 5	< 5	54
Zinc	5	mg/kg	1200	10	7.1	600
% Moisture	1	%	14	22	19	9.6

Client Sample ID			RCD-G02_1.1-1.2	RCD-G02_2.3-2.5	RCG-G02_7.5-7.95	RCD-G03_0.2-0.4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09193**	**S17-Oc09195**	**S17-Oc09199**	**S17-Oc09200**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	130	< 50	55	360
TRH C29-C36	50	mg/kg	98	< 50	< 50	290
TRH C10-36 (Total)	50	mg/kg	228	< 50	55	650
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	0.5
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	0.7
4-Bromofluorobenzene (surr.)	1	%	70	127	92	100
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	200	< 100	< 100	540
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	210
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	4.8	< 0.5	< 0.5	3.0
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	4.8	0.6	0.6	3.3
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	4.8	1.2	1.2	3.5
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	0.7	< 0.5	< 0.5	0.6
Benz(a)anthracene	0.5	mg/kg	2.9	< 0.5	< 0.5	2.3
Benzo(a)pyrene	0.5	mg/kg	3.2	< 0.5	< 0.5	2.2
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	2.1	< 0.5	< 0.5	1.9
Benzo(g.h.i)perylene	0.5	mg/kg	1.6	< 0.5	< 0.5	1.3
Benzo(k)fluoranthene	0.5	mg/kg	3.0	< 0.5	< 0.5	2.4
Chrysene	0.5	mg/kg	3.0	< 0.5	< 0.5	2.6
Dibenz(a.h)anthracene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	4.9	< 0.5	< 0.5	5.2
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	1.5	< 0.5	< 0.5	1.2
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	2.4	< 0.5	< 0.5	3.4
Pyrene	0.5	mg/kg	4.9	< 0.5	< 0.5	5.0
Total PAH*	0.5	mg/kg	30.8	< 0.5	< 0.5	28.1
2-Fluorobiphenyl (surr.)	1	%	101	104	99	98
p-Terphenyl-d14 (surr.)	1	%	103	105	100	98

Client Sample ID			RCD-G02_1.1-1.2	RCD-G02_2.3-2.5	RCG-G02_7.5-7.95	RCD-G03_0.2-0.4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09193**	**S17-Oc09195**	**S17-Oc09199**	**S17-Oc09200**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	2.0
4.4'-DDE	0.05	mg/kg	-	-	-	0.34
4.4'-DDT	0.05	mg/kg	-	-	-	1.2
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	0.48
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	0.48
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	3.54
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	4.02
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	82
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	82
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Bolstar	0.2	mg/kg	-	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.2
Coumaphos	2	mg/kg	-	-	-	< 2
Demeton-S	0.2	mg/kg	-	-	-	< 0.2
Demeton-O	0.2	mg/kg	-	-	-	< 0.2
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Dichlorvos	0.2	mg/kg	-	-	-	< 0.2
Dimethoate	0.2	mg/kg	-	-	-	< 0.2
Disulfoton	0.2	mg/kg	-	-	-	< 0.2
EPN	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.2	mg/kg	-	-	-	< 0.2
Ethoprop	0.2	mg/kg	-	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	-	-	< 0.2
Fenitrothion	0.2	mg/kg	-	-	-	< 0.2
Fensulfothion	0.2	mg/kg	-	-	-	< 0.2
Fenthion	0.2	mg/kg	-	-	-	< 0.2
Malathion	0.2	mg/kg	-	-	-	< 0.2
Merphos	0.2	mg/kg	-	-	-	< 0.2

Client Sample ID			RCD-G02_1.1-1.2	RCD-G02_2.3-2.5	RCG-G02_7.5-7.95	RCD-G03_0.2-0.4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09193**	**S17-Oc09195**	**S17-Oc09199**	**S17-Oc09200**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	-	-	-	< 0.2
Mevinphos	0.2	mg/kg	-	-	-	< 0.2
Monocrotophos	2	mg/kg	-	-	-	< 2
Naled	0.2	mg/kg	-	-	-	< 0.2
Omethoate	2	mg/kg	-	-	-	< 2
Phorate	0.2	mg/kg	-	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Pyrazophos	0.2	mg/kg	-	-	-	< 0.2
Ronnel	0.2	mg/kg	-	-	-	< 0.2
Terbufos	0.2	mg/kg	-	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.2
Tokuthion	0.2	mg/kg	-	-	-	< 0.2
Trichloronate	0.2	mg/kg	-	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	-	97
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	-	< 0.5
Total PCB*	0.5	mg/kg	-	-	-	< 0.5
Dibutylchlorendate (surr.)	1	%	-	-	-	82
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	82
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	-	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	< 1	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	< 1	-	< 1
Pentachlorophenol	1.0	mg/kg	< 1	< 1	-	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1	< 1	-	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
2-Nitrophenol	1	mg/kg	< 1	< 1	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	-	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	-	< 5
Dinoseb	20	mg/kg	< 20	< 20	-	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	-	< 20
Phenol-d6 (surr.)	1	%	102	107	-	93

Client Sample ID			RCD-G02_1.1-1.2	RCD-G02_2.3-2.5	RCG-G02_7.5-7.95	RCD-G03_0.2-0.4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09193**	**S17-Oc09195**	**S17-Oc09199**	**S17-Oc09200**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	5.1	8.4	8.8	14
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	0.9
Chromium	5	mg/kg	15	18	5.2	33
Copper	5	mg/kg	21	< 5	95	160
Lead	5	mg/kg	47	12	30	250
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.1	0.1
Nickel	5	mg/kg	6.4	< 5	< 5	21
Zinc	5	mg/kg	780	8.7	7.4	660
% Moisture	1	%	20	17	12	24

Client Sample ID			RCD-G03_1.25	RCD-G03_6.0-6.45	TB	R20TS
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc09202**	**S17-Oc09206**	**S17-Oc09207**	**S17-Oc09208**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	110
TRH C10-C14	20	mg/kg	< 20	25	-	-
TRH C15-C28	50	mg/kg	< 50	73	-	-
TRH C29-C36	50	mg/kg	< 50	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	98	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	120
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	110
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	100
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	100
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	110
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	100
4-Bromofluorobenzene (surr.)	1	%	81	100	95	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-

Client Sample ID			RCD-G03_1.25	RCD-G03_6.0-6.45	TB	[R20]TS
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-Oc09202	S17-Oc09206	S17-Oc09207	S17-Oc09208
Date Sampled			Oct 06, 2017	Oct 06, 2017	Oct 04, 2017	Oct 04, 2017
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	88	84	-	-
p-Terphenyl-d14 (surr.)	1	%	86	86	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	-
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	-	-	-
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	-	-	-
Pentachlorophenol	1.0	mg/kg	< 1	-	-	-
Tetrachlorophenols - Total	1.0	mg/kg	< 1	-	-	-
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	-
2-Nitrophenol	1	mg/kg	< 1	-	-	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	-
4-Nitrophenol	5	mg/kg	< 5	-	-	-
Dinoseb	20	mg/kg	< 20	-	-	-
Phenol	0.5	mg/kg	< 0.5	-	-	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	-
Phenol-d6 (surr.)	1	%	85	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	2.4	< 2	-	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	-
Chromium	5	mg/kg	< 5	< 5	-	-
Copper	5	mg/kg	9.0	21	-	-
Lead	5	mg/kg	32	40	-	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	-
Nickel	5	mg/kg	< 5	< 5	-	-
Zinc	5	mg/kg	9.4	5.3	-	-
% Moisture	1	%	18	12	-	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Oct 12, 2017	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Oct 12, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 12, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 12, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 12, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Phenols (Halogenated)	Sydney	Oct 12, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Sydney	Oct 12, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Metals M8	Sydney	Oct 12, 2017	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Sydney	Oct 11, 2017	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Oct 11, 2017	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Oct 11, 2017	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Oct 09, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

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Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 5
Project ID: 21 25491 53

Order No.:
Report #: 566778
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 6, 2017 5:00 PM
Due: Oct 13, 2017
Priority: 5 Day
Contact Name: Kamal Kamalarasa

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
External Laboratory																	
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**												
1	RCD-G01_0.2-0.4	Oct 04, 2017		Soil	S17-Oc09166	X							X	X			X
2	RCD-G01_0.5-0.95	Oct 04, 2017		Soil	S17-Oc09167	X											
3	RCD-G01_1.3	Oct 04, 2017		Soil	S17-Oc09168									X			X
4	RCD-G01_1.5-1.95	Oct 04, 2017		Soil	S17-Oc09169			X									
5	RCD-G01_2.3	Oct 04, 2017		Soil	S17-Oc09170			X									
6	RCD-G01_3.0-3.45	Oct 04, 2017		Soil	S17-Oc09171									X			X
7	RCD-G01_4.5-	Oct 04, 2017		Soil	S17-Oc09172			X									

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Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	4.95																
8	DUP1	Oct 04, 2017		Soil	S17-Oc09173					X	X			X	X		
9	RCD-G04_0.8	Oct 05, 2017		Soil	S17-Oc09174	X							X	X			X
10	RCD-G04_1.0-1.45	Oct 05, 2017		Soil	S17-Oc09175	X								X	X		X
11	RCD-G04_1.9	Oct 05, 2017		Soil	S17-Oc09176									X			X
12	RCD-G04_2.5-2.95	Oct 05, 2017		Soil	S17-Oc09177			X									
13	RCD-G04_3.5	Oct 05, 2017		Soil	S17-Oc09178			X									
14	RCD-G04_4.0-4.45	Oct 05, 2017		Soil	S17-Oc09179			X									
15	DUP2	Oct 05, 2017		Soil	S17-Oc09180			X									
16	RCD-G02_0.2-	Oct 06, 2017		Soil	S17-Oc09190	X							X	X			X

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Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	0.3																
17	RCD-G02_0.35-0.45	Oct 06, 2017		Soil	S17-Oc09191			X									
18	RCD-G02_0.5-0.95	Oct 06, 2017		Soil	S17-Oc09192			X									
19	RCD-G02_1.1-1.2	Oct 06, 2017		Soil	S17-Oc09193	X								X			X
20	RCD-G02_1.5-1.95	Oct 06, 2017		Soil	S17-Oc09194			X									
21	RCD-G02_2.3-2.5	Oct 06, 2017		Soil	S17-Oc09195									X			X
22	RCD-G02_3.0-3.45	Oct 06, 2017		Soil	S17-Oc09196		X										
23	RCD-G02_4.5-	Oct 06, 2017		Soil	S17-Oc09197			X									

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Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	4.95																
24	RCG-G02_6.0-6.45	Oct 06, 2017		Soil	S17-Oc09198			X									
25	RCG-G02_7.5-7.95	Oct 06, 2017		Soil	S17-Oc09199									X		X	
26	RCD-G03_0.2-0.4	Oct 06, 2017		Soil	S17-Oc09200	X							X	X			X
27	RCD-G03_0.5-0.95	Oct 06, 2017		Soil	S17-Oc09201			X									
28	RCD-G03_1.25	Oct 06, 2017		Soil	S17-Oc09202									X			X
29	RCD-G03_1.5-1.95	Oct 06, 2017		Soil	S17-Oc09203			X									
30	RCD-G03_3.0-	Oct 06, 2017		Soil	S17-Oc09204			X									

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Sample Detail						Asbestos - AS4964	CANCELLED	HOLD	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Eurofins | mgt Suite B15	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271																	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																	
Perth Laboratory - NATA Site # 23736																	
	3.45																
31	RCG-G03_4.5-4.95	Oct 06, 2017		Soil	S17-Oc09205			X									
32	RCD-G03_6.0-6.45	Oct 06, 2017		Soil	S17-Oc09206									X		X	
33	TB	Oct 04, 2017		Soil	S17-Oc09207				X			X					
34	TS	Oct 04, 2017		Soil	S17-Oc09208				X			X					
Test Counts						7	1	16	2	1	1	2	4	14	2	2	11

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	111			70-130	Pass	
TRH C10-C14	%	94			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	115			70-130	Pass	
Toluene	%	122			70-130	Pass	
Ethylbenzene	%	124			70-130	Pass	
m&p-Xylenes	%	119			70-130	Pass	
o-Xylene	%	118			70-130	Pass	
Xylenes - Total	%	118			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	112			70-130	Pass	
TRH C6-C10	%	105			70-130	Pass	
TRH >C10-C16	%	96			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	90			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Acenaphthylene	%	88			70-130	Pass	
Anthracene	%	95			70-130	Pass	
Benz(a)anthracene	%	85			70-130	Pass	
Benzo(a)pyrene	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	%	76			70-130	Pass	
Benzo(g.h.i)perylene	%	87			70-130	Pass	
Benzo(k)fluoranthene	%	113			70-130	Pass	
Chrysene	%	95			70-130	Pass	
Dibenz(a.h)anthracene	%	92			70-130	Pass	
Fluoranthene	%	87			70-130	Pass	
Fluorene	%	92			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	87			70-130	Pass	
Naphthalene	%	88			70-130	Pass	
Phenanthrene	%	95			70-130	Pass	
Pyrene	%	90			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	100			70-130	Pass	
4.4'-DDE	%	99			70-130	Pass	
4.4'-DDT	%	89			70-130	Pass	
a-BHC	%	96			70-130	Pass	
Aldrin	%	96			70-130	Pass	
b-BHC	%	90			70-130	Pass	
d-BHC	%	92			70-130	Pass	
Dieldrin	%	107			70-130	Pass	
Endosulfan I	%	97			70-130	Pass	
Endosulfan II	%	96			70-130	Pass	
Endosulfan sulphate	%	99			70-130	Pass	
Endrin	%	114			70-130	Pass	
Endrin aldehyde	%	85			70-130	Pass	
Endrin ketone	%	99			70-130	Pass	
g-BHC (Lindane)	%	95			70-130	Pass	
Heptachlor	%	96			70-130	Pass	
Heptachlor epoxide	%	100			70-130	Pass	
Hexachlorobenzene	%	90			70-130	Pass	
Methoxychlor	%	103			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	110			70-130	Pass	
Dimethoate	%	90			70-130	Pass	
Ethion	%	89			70-130	Pass	
Fenitrothion	%	84			70-130	Pass	
Methyl parathion	%	82			70-130	Pass	
Mevinphos	%	92			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	92			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	90			30-130	Pass	
2.4-Dichlorophenol	%	81			30-130	Pass	
2.4.5-Trichlorophenol	%	77			30-130	Pass	
2.4.6-Trichlorophenol	%	82			30-130	Pass	
2.6-Dichlorophenol	%	86			30-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Chloro-3-methylphenol	%	76			30-130	Pass	
Pentachlorophenol	%	71			30-130	Pass	
Tetrachlorophenols - Total	%	76			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	100			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	72			30-130	Pass	
2-Methylphenol (o-Cresol)	%	94			30-130	Pass	
2-Nitrophenol	%	86			30-130	Pass	
2.4-Dimethylphenol	%	115			30-130	Pass	
2.4-Dinitrophenol	%	109			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	81			30-130	Pass	
4-Nitrophenol	%	85			30-130	Pass	
Dinoseb	%	72			30-130	Pass	
Phenol	%	86			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	115			70-130	Pass	
Cadmium	%	114			70-130	Pass	
Chromium	%	113			70-130	Pass	
Copper	%	112			70-130	Pass	
Lead	%	117			70-130	Pass	
Mercury	%	117			70-130	Pass	
Nickel	%	113			70-130	Pass	
Zinc	%	113			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S17-Oc09166	CP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S17-Oc09166	CP	%	116			70-130	Pass	
Toluene	S17-Oc09166	CP	%	117			70-130	Pass	
Ethylbenzene	S17-Oc09166	CP	%	115			70-130	Pass	
m&p-Xylenes	S17-Oc09166	CP	%	116			70-130	Pass	
o-Xylene	S17-Oc09166	CP	%	115			70-130	Pass	
Xylenes - Total	S17-Oc09166	CP	%	115			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S17-Oc09166	CP	%	84			70-130	Pass	
TRH C6-C10	S17-Oc09166	CP	%	99			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S17-Oc10770	NCP	%	95			70-130	Pass	
Acenaphthylene	S17-Oc10770	NCP	%	95			70-130	Pass	
Anthracene	S17-Oc10770	NCP	%	101			70-130	Pass	
Benz(a)anthracene	S17-Oc10770	NCP	%	94			70-130	Pass	
Benzo(a)pyrene	S17-Oc10770	NCP	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	S17-Oc10770	NCP	%	85			70-130	Pass	
Benzo(g.h.i)perylene	S17-Oc10770	NCP	%	95			70-130	Pass	
Benzo(k)fluoranthene	S17-Oc10770	NCP	%	116			70-130	Pass	
Chrysene	S17-Oc10770	NCP	%	99			70-130	Pass	
Dibenz(a.h)anthracene	S17-Oc10770	NCP	%	98			70-130	Pass	
Fluoranthene	S17-Oc10770	NCP	%	94			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	S17-Oc10770	NCP	%	97			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc10770	NCP	%	97			70-130	Pass	
Naphthalene	S17-Oc10770	NCP	%	93			70-130	Pass	
Phenanthrene	S17-Oc10770	NCP	%	97			70-130	Pass	
Pyrene	S17-Oc10770	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	S17-Oc10772	NCP	%	113			70-130	Pass	
4.4'-DDE	S17-Oc10772	NCP	%	90			70-130	Pass	
4.4'-DDT	S17-Oc15062	NCP	%	93			70-130	Pass	
a-BHC	S17-Oc10772	NCP	%	84			70-130	Pass	
Aldrin	S17-Oc10772	NCP	%	83			70-130	Pass	
b-BHC	S17-Oc10772	NCP	%	81			70-130	Pass	
d-BHC	S17-Oc10772	NCP	%	81			70-130	Pass	
Dieldrin	S17-Oc10772	NCP	%	100			70-130	Pass	
Endosulfan I	S17-Oc10772	NCP	%	89			70-130	Pass	
Endosulfan II	S17-Oc10772	NCP	%	96			70-130	Pass	
Endosulfan sulphate	S17-Oc10772	NCP	%	92			70-130	Pass	
Endrin	S17-Oc10772	NCP	%	99			70-130	Pass	
Endrin aldehyde	S17-Oc10772	NCP	%	90			70-130	Pass	
Endrin ketone	S17-Oc10772	NCP	%	91			70-130	Pass	
g-BHC (Lindane)	S17-Oc10772	NCP	%	83			70-130	Pass	
Heptachlor	S17-Oc10772	NCP	%	76			70-130	Pass	
Heptachlor epoxide	S17-Oc10772	NCP	%	90			70-130	Pass	
Hexachlorobenzene	S17-Oc10772	NCP	%	78			70-130	Pass	
Methoxychlor	S17-Oc15062	NCP	%	108			70-130	Pass	
Toxaphene	S17-Oc10772	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S17-Oc15218	NCP	%	103			70-130	Pass	
Dimethoate	S17-Oc15218	NCP	%	76			70-130	Pass	
Ethion	S17-Oc15218	NCP	%	84			70-130	Pass	
Mevinphos	S17-Oc15218	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S17-Oc10770	NCP	%	104			30-130	Pass	
2.4-Dichlorophenol	S17-Oc10770	NCP	%	102			30-130	Pass	
2.4.5-Trichlorophenol	S17-Oc10770	NCP	%	111			30-130	Pass	
2.4.6-Trichlorophenol	S17-Oc10770	NCP	%	96			30-130	Pass	
2.6-Dichlorophenol	S17-Oc10770	NCP	%	100			30-130	Pass	
4-Chloro-3-methylphenol	S17-Oc10770	NCP	%	107			30-130	Pass	
Pentachlorophenol	S17-Oc10770	NCP	%	79			30-130	Pass	
Tetrachlorophenols - Total	S17-Oc10770	NCP	%	96			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S17-Oc07551	NCP	%	99			30-130	Pass	
2-Methyl-4.6-dinitrophenol	S17-Oc10770	NCP	%	82			30-130	Pass	
2-Methylphenol (o-Cresol)	S17-Oc10770	NCP	%	114			30-130	Pass	
2-Nitrophenol	S17-Oc10770	NCP	%	105			30-130	Pass	
2.4-Dimethylphenol	S17-Oc10770	NCP	%	94			30-130	Pass	
2.4-Dinitrophenol	S17-Oc07551	NCP	%	106			70-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S17-Oc10770	NCP	%	106			30-130	Pass	
4-Nitrophenol	S17-Oc10770	NCP	%	100			30-130	Pass	
Dinoseb	S17-Oc10770	NCP	%	92			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenol	S17-Oc10770	NCP	%	108			30-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	S17-Oc09174	CP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S17-Oc09195	CP	%	76			70-130	Pass	
Cadmium	S17-Oc09195	CP	%	105			70-130	Pass	
Chromium	S17-Oc09195	CP	%	89			70-130	Pass	
Copper	S17-Oc09195	CP	%	78			70-130	Pass	
Lead	S17-Oc09195	CP	%	91			70-130	Pass	
Mercury	S17-Oc09195	CP	%	105			70-130	Pass	
Nickel	S17-Oc09195	CP	%	94			70-130	Pass	
Zinc	S17-Oc09195	CP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S17-Oc09199	CP	%	77			70-130	Pass	
TRH C10-C14	S17-Oc09199	CP	%	80			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S17-Oc09199	CP	%	101			70-130	Pass	
Toluene	S17-Oc09199	CP	%	101			70-130	Pass	
Ethylbenzene	S17-Oc09199	CP	%	98			70-130	Pass	
m&p-Xylenes	S17-Oc09199	CP	%	99			70-130	Pass	
o-Xylene	S17-Oc09199	CP	%	99			70-130	Pass	
Xylenes - Total	S17-Oc09199	CP	%	99			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S17-Oc09199	CP	%	78			70-130	Pass	
TRH C6-C10	S17-Oc09199	CP	%	80			70-130	Pass	
TRH >C10-C16	S17-Oc09199	CP	%	83			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S17-Oc10770	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S17-Oc10770	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S17-Oc10770	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S17-Oc10770	NCP	mg/kg	< 1	< 1	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S17-Oc06320	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S17-Oc06320	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S17-Oc06320	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S17-Oc06320	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S17-Oc06320	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S17-Oc06320	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S17-Oc06320	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-Oc09175	CP	%	22	23	4.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S17-Oc09193	CP	mg/kg	5.1	6.3	20	30%	Pass	
Cadmium	S17-Oc09193	CP	mg/kg	< 0.4	0.5	56	30%	Fail	Q15
Chromium	S17-Oc09193	CP	mg/kg	15	15	<1	30%	Pass	
Copper	S17-Oc09193	CP	mg/kg	21	20	6.0	30%	Pass	
Lead	S17-Oc09193	CP	mg/kg	47	44	6.0	30%	Pass	
Mercury	S17-Oc09193	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S17-Oc09193	CP	mg/kg	6.4	< 5	28	30%	Pass	
Zinc	S17-Oc09193	CP	mg/kg	780	500	44	30%	Fail	Q15
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S17-Oc09195	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S17-Oc09195	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S17-Oc09195	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S17-Oc09195	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S17-Oc09195	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S17-Oc09195	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S17-Oc09195	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S17-Oc09195	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S17-Oc09195	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S17-Oc09195	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S17-Oc09195	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S17-Oc09195	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S17-Oc09195	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Fluorene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S17-Oc09195	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S17-Oc09195	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S17-Oc09195	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S17-Oc09195	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S17-Oc09195	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S17-Oc09195	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S17-Oc09195	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S17-Oc09195	CP	mg/kg	< 1	< 1	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S17-Oc09195	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S17-Oc09195	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S17-Oc09195	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	S17-Oc09195	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S17-Oc09195	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S17-Oc09195	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S17-Oc09195	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S17-Oc09195	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S17-Oc09195	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Comments

This report has been revised (V2) to amend Sample IDs and Sample Dates.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Nibha Vaidya	Senior Analyst-Asbestos (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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☐ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID : 170615GHDN**
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)	Halogenated Volatile Organics (HALVOL)		pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						Containers: 1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag	Sample comments:
1	RCD-G05_0.2-0.5	12/10/2017	soil			x	x	x	x																					1	1	
2	RCD-G05_0.5-0.8	12/10/2017	soil	x		x																								1	1	
3	RCD-G05_1.0-1.3	12/10/2017	soil																											1	1	
4	RCD-G05_1.5-1.95	12/10/2017	soil																											1	1	
5	RCD-G05_3.0-3.45	12/10/2017	soil	x																										1	1	
6	RCD-G05_4.5-4.95	12/10/2017	soil																											1	1	
7	RCD-G05_6.0-6.45	12/10/2017	soil																											1	1	
8	RCD-G05_7.5-7.95	12/10/2017	soil																											1	1	
9	RCD-G05_9.0-9.45	12/10/2017	soil																											1	1	
10	RCD-G05_10.45-10.5	12/10/2017	soil																											1	1	
11	RCD-G05_12.0-12.10	12/10/2017	soil																											1	1	
12	RCD-G07_0.2-0.5	10/10/2017	soil			x	x	x	x																					1	1	
13	RCD-G07_0.5-0.95	10/10/2017	soil	x		x																								1	1	
14	RCD-G07_1.5-1.95	10/10/2017	soil																											1	1	
15	RCD-G07_3.0-3.45	10/10/2017	soil																											1	1	
16	RCD-G07_6.0-6.45	10/10/2017	soil	x																										1	1	

Laboratory Staff

Relinquished By: Henry Luo

Date & Time : 16/10/2017 17:00

Signature:

Received By: AB

Date & Time : 16/10 5:15pm

Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

5 DAY ☑ 10 DAY ☐ Other:

☑ Courier
☐ Hand Delivered
☐ Postal

Courier Consignment # :

Temperature on arrival:

Report number: 567987

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

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Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID : 170615GHDN**
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)	Halogenated Volatile Organics (HALVOL)		pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	RCD-G06_0.1-0.4	16/10/2017	soil		x		x	x	x															
2	RCD-G06_0.5-0.95	16/10/2017	soil	x	x																			
3	RCD-G06_1.1-1.3	16/10/2017	soil																					
4	RCD-G06_1.5-1.95	16/10/2017	soil																					
5	RCD-G06_2.4-2.6	16/10/2017	soil	x																				
6	RCD-G06_3.0-3.45	16/10/2017	soil																					
7	RCD-G06_3.9-4.1	16/10/2017	soil																					
8	RCD-G06_4.5-4.95	16/10/2017	soil																					
9	RCD-G06_6.0-6.45	16/10/2017	soil																					
10	RCD-G06_7.5-7.95	16/10/2017	soil																					
11	DUP03	16/10/2017	soil													x								
12	Trip Blank	16/10/2017	soil														x							
13	Trip Spike	16/10/2017	soil															x						
14																								
15																								
16																								

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
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Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag	Sample comments:
1							1	1	
2							1	1	
3							1	1	
4							1	1	
5							1	1	
6							1	1	
7							1	1	
8							1	1	
9							1	1	
10							1	1	
11							1		
12					1				
13					1				
14									
15									
16									

Laboratory Staff

Relinquished By: Henry Luo

Date & Time : 16/10/2017 17:00

Signature:

Received By: AB

Date & Time : 16/10 5:15pm

Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal

Courier Consignment # :

Temperature on arrival:

Report number:

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention:	Henry Luo
Report	567987-AID
Project Name	S2B PORTION 5
Project ID	212549153
Received Date	Oct 16, 2017
Date Reported	Oct 19, 2017

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS4964 method for inhomogeneous samples is around 0.1 g/kg (0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis where required, this is considered to be at the nominal reporting limit of 0.01 % (w / w).The examination of large sample sizes(500 mL is recommended) may improve the likelihood of identifying ACM in the > 2mm fraction.The NEPM screening level of 0.001 % (w / w) asbestos in soil for FA(friable asbestos) and AF(asbestos fines) then applies where they are able to be quantified by gravimetric procedures.This quantitative screening is not generally applicable to FF(free fibres) and results of Trace Analysis are referred. *NOTE: NATA News March 2014, p.7, states in relation to AS4964: "This is a qualitative method with a nominal reporting limit of 0.01%" and that currently in Australia "there is no validated method available for the quantification of asbestos". Accordingly, NATA Accreditation does not cover the performance of this service (indicated with an asterisk).* *This report is consistent with the analytical procedures and reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended) and the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009, including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil, June 2011.*

Project Name S2B PORTION 5
Project ID 212549153
Date Sampled Oct 10, 2017 to Oct 16, 2017
Report 567987-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
RCD-G05_0.2-0.5	17-Oc18757	Oct 12, 2017	Approximate Sample 21g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.
RCD-G05_0.5-0.8	17-Oc18758	Oct 12, 2017	Approximate Sample 64g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.
RCD-G07_0.2-0.5	17-Oc18760	Oct 10, 2017	Approximate Sample 68g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.
RCD-G07_0.5-0.95	17-Oc18761	Oct 10, 2017	Approximate Sample 12g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.
RCD-G06_0.1-0.4	17-Oc18763	Oct 16, 2017	Approximate Sample 77g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.
RCD-G06_0.5-0.95	17-Oc18764	Oct 16, 2017	Approximate Sample 53g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w.* Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Oct 17, 2017	Indefinite

Comments

The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention: **Henry Luo**

Report **567987-S**
Project name S2B PORTION 5
Project ID 212549153
Received Date Oct 16, 2017

Client Sample ID			**RCD-G05_0.2-0.5**	**RCD-G05_0.5-0.8**	**RCD-G05_3.0-3.45**	**RCD-G07_0.2-0.5**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18757**	**S17-Oc18758**	**S17-Oc18759**	**S17-Oc18760**
Date Sampled			**Oct 12, 2017**	**Oct 12, 2017**	**Oct 12, 2017**	**Oct 10, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	440	55	51	210
TRH C29-C36	50	mg/kg	590	< 50	< 50	260
TRH C10-36 (Total)	50	mg/kg	1030	55	51	470
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	0.3
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	0.5
4-Bromofluorobenzene (surr.)	1	%	116	67	81	118
Halogenated Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Bromoform	0.5	mg/kg	< 0.5	-	-	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	-	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chloroform	0.5	mg/kg	< 0.5	-	-	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	-	-	< 0.5

Client Sample ID			RCD-G05_0.2-0.5	RCD-G05_0.5-0.8	RCD-G05_3.0-3.45	RCD-G07_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18757**	**S17-Oc18758**	**S17-Oc18759**	**S17-Oc18760**
Date Sampled			**Oct 12, 2017**	**Oct 12, 2017**	**Oct 12, 2017**	**Oct 10, 2017**
Test/Reference	LOR	Unit				
Halogenated Volatile Organics						
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Iodomethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Methylene Chloride	0.5	mg/kg	< 0.5	-	-	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	-	-	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	-	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluorobenzene (surr.)	1	%	108	-	-	113
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	730	< 100	< 100	340
TRH >C34-C40	100	mg/kg	610	< 100	< 100	360
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	0.9	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	1.2	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.4	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	0.6	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	0.7	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	0.6	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	0.7	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	1.4	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	1.0	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	1.3	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	6.8	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	87	95	85	86
p-Terphenyl-d14 (surr.)	1	%	89	94	91	89

Client Sample ID			RCD-G05_0.2-0.5	RCD-G05_0.5-0.8	RCD-G05_3.0-3.45	RCD-G07_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18757**	**S17-Oc18758**	**S17-Oc18759**	**S17-Oc18760**
Date Sampled			**Oct 12, 2017**	**Oct 12, 2017**	**Oct 12, 2017**	**Oct 10, 2017**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	< 0.05
a-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
Aldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
b-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
d-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	-	-	< 0.2
Toxaphene	1	mg/kg	< 1	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	61	-	-	65
Tetrachloro-m-xylene (surr.)	1	%	78	-	-	85
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Bolstar	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Coumaphos	2	mg/kg	< 2	-	-	< 2
Demeton-S	0.2	mg/kg	< 0.2	-	-	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	-	-	< 0.2
Diazinon	0.2	mg/kg	< 0.2	-	-	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	-	-	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	-	-	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	-	-	< 0.2
EPN	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethion	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fenthion	0.2	mg/kg	< 0.2	-	-	< 0.2
Malathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Merphos	0.2	mg/kg	< 0.2	-	-	< 0.2

Client Sample ID			RCD-G05_0.2-0.5	RCD-G05_0.5-0.8	RCD-G05_3.0-3.45	RCD-G07_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18757**	**S17-Oc18758**	**S17-Oc18759**	**S17-Oc18760**
Date Sampled			**Oct 12, 2017**	**Oct 12, 2017**	**Oct 12, 2017**	**Oct 10, 2017**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Monocrotophos	2	mg/kg	< 2	-	-	< 2
Naled	0.2	mg/kg	< 0.2	-	-	< 0.2
Omethoate	2	mg/kg	< 2	-	-	< 2
Phorate	0.2	mg/kg	< 0.2	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	-	-	< 0.2
Ronnel	0.2	mg/kg	< 0.2	-	-	< 0.2
Terbufos	0.2	mg/kg	< 0.2	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	-	-	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	105	-	-	106
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	-	-	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibutylchlorendate (surr.)	1	%	61	-	-	65
Tetrachloro-m-xylene (surr.)	1	%	78	-	-	85
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	-	-	< 1
Pentachlorophenol	1.0	mg/kg	< 1	-	-	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	< 0.2
2-Nitrophenol	1	mg/kg	< 1	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	< 0.4
4-Nitrophenol	5	mg/kg	< 5	-	-	< 5
Dinoseb	20	mg/kg	< 20	-	-	< 20
Phenol	0.5	mg/kg	< 0.5	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	< 20
Phenol-d6 (surr.)	1	%	100	-	-	96

Client Sample ID			RCD-G05_0.2-0.5	RCD-G05_0.5-0.8	RCD-G05_3.0-3.45	RCD-G07_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18757**	**S17-Oc18758**	**S17-Oc18759**	**S17-Oc18760**
Date Sampled			**Oct 12, 2017**	**Oct 12, 2017**	**Oct 12, 2017**	**Oct 10, 2017**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	39	14	< 2	5.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	110	30	9.8	12
Copper	5	mg/kg	260	44	< 5	7.8
Lead	5	mg/kg	250	82	< 5	60
Mercury	0.1	mg/kg	0.2	0.2	< 0.1	< 0.1
Nickel	5	mg/kg	72	25	< 5	5.7
Zinc	5	mg/kg	170	55	< 5	32
% Moisture	1	%	5.8	20	15	15

Client Sample ID			RCD-G07_0.5-0.95	RCD-G07_6.0-6.45	RCD-G06_0.1-0.4	RCD-G06_0.5-0.95
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18761**	**S17-Oc18762**	**S17-Oc18763**	**S17-Oc18764**
Date Sampled			**Oct 10, 2017**	**Oct 10, 2017**	**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	330	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	240	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	570	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	72	73	100	68
Halogenated Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Bromodichloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromoform	0.5	mg/kg	-	-	< 0.5	-

Client Sample ID			RCD-G07_0.5-0.95	RCD-G07_6.0-6.45	RCD-G06_0.1-0.4	RCD-G06_0.5-0.95
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18761**	**S17-Oc18762**	**S17-Oc18763**	**S17-Oc18764**
Date Sampled			**Oct 10, 2017**	**Oct 10, 2017**	**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit				
Halogenated Volatile Organics						
Bromomethane	0.5	mg/kg	-	-	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	-	-	< 0.5	-
Chlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Chloroform	0.5	mg/kg	-	-	< 0.5	-
Chloromethane	0.5	mg/kg	-	-	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Dibromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Dibromomethane	0.5	mg/kg	-	-	< 0.5	-
Iodomethane	0.5	mg/kg	-	-	< 0.5	-
Methylene Chloride	0.5	mg/kg	-	-	< 0.5	-
Tetrachloroethene	0.5	mg/kg	-	-	< 0.5	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Trichloroethene	0.5	mg/kg	-	-	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	-	-	< 0.5	-
Vinyl chloride	0.5	mg/kg	-	-	< 0.5	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	-	< 0.5	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	-	< 0.5	-
Fluorobenzene (surr.)	1	%	-	-	110	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	470	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	190	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	7.8	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	7.8	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	7.8	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	1.2	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	4.6	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	5.4	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	4.1	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	2.6	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	4.2	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	4.7	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	0.7	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	8.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	2.9	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	3.4	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	8.8	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	51.1	< 0.5

Client Sample ID			RCD-G07_0.5-0.95	RCD-G07_6.0-6.45	RCD-G06_0.1-0.4	RCD-G06_0.5-0.95
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18761**	**S17-Oc18762**	**S17-Oc18763**	**S17-Oc18764**
Date Sampled			**Oct 10, 2017**	**Oct 10, 2017**	**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
2-Fluorobiphenyl (surr.)	1	%	88	90	93	100
p-Terphenyl-d14 (surr.)	1	%	95	98	93	104
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-BHC	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.2	mg/kg	-	-	< 0.2	-
Toxaphene	1	mg/kg	-	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	63	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	79	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Bolstar	0.2	mg/kg	-	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	-	-	< 0.2	-
Coumaphos	2	mg/kg	-	-	< 2	-
Demeton-S	0.2	mg/kg	-	-	< 0.2	-
Demeton-O	0.2	mg/kg	-	-	< 0.2	-
Diazinon	0.2	mg/kg	-	-	< 0.2	-
Dichlorvos	0.2	mg/kg	-	-	< 0.2	-
Dimethoate	0.2	mg/kg	-	-	< 0.2	-
Disulfoton	0.2	mg/kg	-	-	< 0.2	-
EPN	0.2	mg/kg	-	-	< 0.2	-
Ethion	0.2	mg/kg	-	-	< 0.2	-
Ethoprop	0.2	mg/kg	-	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	-	-	< 0.2	-
Fenitrothion	0.2	mg/kg	-	-	< 0.2	-
Fensulfothion	0.2	mg/kg	-	-	< 0.2	-

Client Sample ID			RCD-G07_0.5-0.95	RCD-G07_6.0-6.45	RCD-G06_0.1-0.4	RCD-G06_0.5-0.95
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18761**	**S17-Oc18762**	**S17-Oc18763**	**S17-Oc18764**
Date Sampled			**Oct 10, 2017**	**Oct 10, 2017**	**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Fenthion	0.2	mg/kg	-	-	< 0.2	-
Malathion	0.2	mg/kg	-	-	< 0.2	-
Merphos	0.2	mg/kg	-	-	< 0.2	-
Methyl parathion	0.2	mg/kg	-	-	< 0.2	-
Mevinphos	0.2	mg/kg	-	-	< 0.2	-
Monocrotophos	2	mg/kg	-	-	< 2	-
Naled	0.2	mg/kg	-	-	< 0.2	-
Omethoate	2	mg/kg	-	-	< 2	-
Phorate	0.2	mg/kg	-	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Pyrazophos	0.2	mg/kg	-	-	< 0.2	-
Ronnel	0.2	mg/kg	-	-	< 0.2	-
Terbufos	0.2	mg/kg	-	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	-	-	< 0.2	-
Tokuthion	0.2	mg/kg	-	-	< 0.2	-
Trichloronate	0.2	mg/kg	-	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	-	-	103	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	-	< 0.5	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1232	0.5	mg/kg	-	-	< 0.5	-
Aroclor-1242	0.5	mg/kg	-	-	< 0.5	-
Aroclor-1248	0.5	mg/kg	-	-	< 0.5	-
Aroclor-1254	0.5	mg/kg	-	-	< 0.5	-
Aroclor-1260	0.5	mg/kg	-	-	< 0.5	-
Total PCB*	0.5	mg/kg	-	-	< 0.5	-
Dibutylchlorendate (surr.)	1	%	-	-	63	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	79	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.4.6-Trichlorophenol	1.0	mg/kg	-	-	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
4-Chloro-3-methylphenol	1.0	mg/kg	-	-	< 1	-
Pentachlorophenol	1.0	mg/kg	-	-	< 1	-
Tetrachlorophenols - Total	1.0	mg/kg	-	-	< 1	-
Total Halogenated Phenol*	1	mg/kg	-	-	< 1	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
2-Nitrophenol	1	mg/kg	-	-	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	-	-	< 5	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-
4-Nitrophenol	5	mg/kg	-	-	< 5	-
Dinoseb	20	mg/kg	-	-	< 20	-
Phenol	0.5	mg/kg	-	-	< 0.5	-

Client Sample ID			RCD-G07_0.5-0.95	RCD-G07_6.0-6.45	RCD-G06_0.1-0.4	RCD-G06_0.5-0.95
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18761**	**S17-Oc18762**	**S17-Oc18763**	**S17-Oc18764**
Date Sampled			**Oct 10, 2017**	**Oct 10, 2017**	**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Total Non-Halogenated Phenol*	20	mg/kg	-	-	< 20	-
Phenol-d6 (surr.)	1	%	-	-	95	-
Heavy Metals						
Arsenic	2	mg/kg	7.9	36	13	12
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	21	13	16	18
Copper	5	mg/kg	12	82	42	7.3
Lead	5	mg/kg	23	< 5	180	61
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.1	0.4
Nickel	5	mg/kg	7.0	7.2	41	6.1
Zinc	5	mg/kg	10	33	120	75
% Moisture	1	%	19	16	11	18

Client Sample ID			RCD-G06_2.4-2.6	DUP03
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18765**	**S17-Oc18766**
Date Sampled			**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	120
TRH C29-C36	50	mg/kg	< 50	130
TRH C10-36 (Total)	50	mg/kg	< 50	250
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	71	64
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	180
TRH >C34-C40	100	mg/kg	< 100	130
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	2.2
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	2.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	2.7
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			RCD-G06_2.4-2.6	DUP03
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc18765**	**S17-Oc18766**
Date Sampled			**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	1.3
Benzo(a)pyrene	0.5	mg/kg	< 0.5	1.7
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	1.2
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	0.9
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	1.4
Chrysene	0.5	mg/kg	< 0.5	1.4
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	2.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	1.0
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	1.1
Pyrene	0.5	mg/kg	< 0.5	2.6
Total PAH*	0.5	mg/kg	< 0.5	15.1
2-Fluorobiphenyl (surr.)	1	%	95	91
p-Terphenyl-d14 (surr.)	1	%	101	87
Heavy Metals				
Arsenic	2	mg/kg	2.3	12
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	16	21
Copper	5	mg/kg	5.0	53
Lead	5	mg/kg	15	160
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	5.3	68
Zinc	5	mg/kg	8.4	140
% Moisture	1	%	17	6.1

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 18, 2017	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (Halogenated)	Sydney	Oct 18, 2017	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Sydney	Oct 18, 2017	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Metals M8	Sydney	Oct 18, 2017	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Halogenated Volatile Organics	Sydney	Oct 18, 2017	7 Day
- Method: E016 Volatile Halogenated Compounds (VHC)			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Sydney	Oct 19, 2017	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Oct 18, 2017	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Oct 19, 2017	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Oct 17, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

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Project Name: S2B PORTION 5
Project ID: 212549153

Order No.: 2125491
Report #: 567987
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 16, 2017 5:15 PM
Due: Oct 19, 2017
Priority: 3 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	CANCELLED	Eurofins | mgt Suite B15	Halogenated Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	RCD-G05_0.2-0.5	Oct 12, 2017		Soil	S17-Oc18757	X		X	X	X		X
2	RCD-G05_0.5-0.8	Oct 12, 2017		Soil	S17-Oc18758	X				X	X	
3	RCD-G05_3.0-3.45	Oct 12, 2017		Soil	S17-Oc18759					X	X	
4	RCD-G07_0.2-0.5	Oct 10, 2017		Soil	S17-Oc18760	X		X	X	X		X
5	RCD-G07_0.5-0.95	Oct 10, 2017		Soil	S17-Oc18761	X				X	X	
6	RCD-G07_6.0-	Oct 10, 2017		Soil	S17-Oc18762					X	X	

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Project ID: 212549153

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Received: Oct 16, 2017 5:15 PM
Due: Oct 19, 2017
Priority: 3 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	CANCELLED	Eurofins | mgt Suite B15	Halogenated Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
	6.45											
7	RCD-G06_0.1-0.4	Oct 16, 2017		Soil	S17-Oc18763	X		X	X	X		X
8	RCD-G06_0.5-0.95	Oct 16, 2017		Soil	S17-Oc18764	X				X	X	
9	RCD-G06_2.4-2.6	Oct 16, 2017		Soil	S17-Oc18765					X	X	
10	DUP03	Oct 16, 2017		Soil	S17-Oc18766					X	X	
11	TRIP BLANK	Oct 16, 2017		Soil	S17-Oc18767		X					
12	TRIP SPIKE	Oct 16, 2017		Soil	S17-Oc18768		X					
Test Counts						6	2	3	3	10	7	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Halogenated Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	83			70-130	Pass	
TRH C10-C14	%	91			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	91			70-130	Pass	
Ethylbenzene	%	88			70-130	Pass	
m&p-Xylenes	%	91			70-130	Pass	
o-Xylene	%	90			70-130	Pass	
Xylenes - Total	%	90			70-130	Pass	
LCS - % Recovery							
Halogenated Volatile Organics							
1.1-Dichloroethene	%	74			70-130	Pass	
1.1.1-Trichloroethane	%	72			70-130	Pass	
1.2-Dichlorobenzene	%	91			70-130	Pass	
1.2-Dichloroethane	%	89			70-130	Pass	
Trichloroethene	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	76			70-130	Pass	
TRH C6-C10	%	80			70-130	Pass	
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	93			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	96			70-130	Pass	
Benz(a)anthracene	%	90			70-130	Pass	
Benzo(a)pyrene	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	%	92			70-130	Pass	
Benzo(g.h.i)perylene	%	93			70-130	Pass	
Benzo(k)fluoranthene	%	93			70-130	Pass	
Chrysene	%	93			70-130	Pass	
Dibenz(a.h)anthracene	%	99			70-130	Pass	
Fluoranthene	%	90			70-130	Pass	
Fluorene	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	91			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	%	93			70-130	Pass	
Phenanthrene	%	87			70-130	Pass	
Pyrene	%	91			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	80			70-130	Pass	
4.4'-DDE	%	80			70-130	Pass	
4.4'-DDT	%	96			70-130	Pass	
a-BHC	%	88			70-130	Pass	
Aldrin	%	80			70-130	Pass	
b-BHC	%	80			70-130	Pass	
d-BHC	%	80			70-130	Pass	
Dieldrin	%	80			70-130	Pass	
Endosulfan I	%	80			70-130	Pass	
Endosulfan II	%	88			70-130	Pass	
Endosulfan sulphate	%	80			70-130	Pass	
Endrin	%	104			70-130	Pass	
Endrin aldehyde	%	80			70-130	Pass	
Endrin ketone	%	80			70-130	Pass	
g-BHC (Lindane)	%	88			70-130	Pass	
Heptachlor	%	96			70-130	Pass	
Heptachlor epoxide	%	88			70-130	Pass	
Hexachlorobenzene	%	88			70-130	Pass	
Methoxychlor	%	96			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	86			70-130	Pass	
Dimethoate	%	75			70-130	Pass	
Ethion	%	71			70-130	Pass	
Fenitrothion	%	77			70-130	Pass	
Methyl parathion	%	75			70-130	Pass	
Mevinphos	%	87			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	83			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	90			30-130	Pass	
2.4-Dichlorophenol	%	93			30-130	Pass	
2.4.5-Trichlorophenol	%	78			30-130	Pass	
2.4.6-Trichlorophenol	%	87			30-130	Pass	
2.6-Dichlorophenol	%	84			30-130	Pass	
4-Chloro-3-methylphenol	%	85			30-130	Pass	
Pentachlorophenol	%	83			30-130	Pass	
Tetrachlorophenols - Total	%	81			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	73			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	73			30-130	Pass	
2-Methylphenol (o-Cresol)	%	88			30-130	Pass	
2-Nitrophenol	%	86			30-130	Pass	
2.4-Dimethylphenol	%	79			30-130	Pass	
2.4-Dinitrophenol	%	72			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	87			30-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Nitrophenol			%	83			30-130	Pass	
Dinoseb			%	72			30-130	Pass	
Phenol			%	89			30-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	104			70-130	Pass	
Cadmium			%	99			70-130	Pass	
Chromium			%	101			70-130	Pass	
Copper			%	99			70-130	Pass	
Lead			%	103			70-130	Pass	
Mercury			%	106			70-130	Pass	
Nickel			%	98			70-130	Pass	
Zinc			%	100			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Halogenated Volatile Organics				Result 1					
1.1-Dichloroethene	S17-Oc19524	NCP	%	103			70-130	Pass	
1.1.1-Trichloroethane	S17-Oc19524	NCP	%	98			70-130	Pass	
1.2-Dichlorobenzene	S17-Oc19524	NCP	%	105			70-130	Pass	
1.2-Dichloroethane	S17-Oc19524	NCP	%	120			70-130	Pass	
Trichloroethene	S17-Oc19524	NCP	%	123			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	S17-Oc18757	CP	%	80			70-130	Pass	
4.4'-DDE	S17-Oc18757	CP	%	80			70-130	Pass	
4.4'-DDT	S17-Oc18757	CP	%	80			70-130	Pass	
a-BHC	S17-Oc18757	CP	%	80			70-130	Pass	
Aldrin	S17-Oc18757	CP	%	80			70-130	Pass	
b-BHC	S17-Oc18757	CP	%	80			70-130	Pass	
d-BHC	S17-Oc18757	CP	%	72			70-130	Pass	
Dieldrin	S17-Oc18757	CP	%	88			70-130	Pass	
Endosulfan I	S17-Oc18757	CP	%	80			70-130	Pass	
Endosulfan II	S17-Oc18757	CP	%	80			70-130	Pass	
Endosulfan sulphate	S17-Oc18757	CP	%	80			70-130	Pass	
Endrin	S17-Oc18757	CP	%	80			70-130	Pass	
Endrin aldehyde	S17-Oc18757	CP	%	72			70-130	Pass	
Endrin ketone	S17-Oc18757	CP	%	88			70-130	Pass	
g-BHC (Lindane)	S17-Oc18757	CP	%	80			70-130	Pass	
Heptachlor	S17-Oc18757	CP	%	88			70-130	Pass	
Heptachlor epoxide	S17-Oc18757	CP	%	80			70-130	Pass	
Hexachlorobenzene	S17-Oc18757	CP	%	80			70-130	Pass	
Methoxychlor	S17-Oc18757	CP	%	104			70-130	Pass	
Toxaphene	S17-Oc17757	NCP	%	128			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	S17-Oc17725	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S17-Oc18604	NCP	%	113			30-130	Pass	
2.4-Dichlorophenol	S17-Oc18604	NCP	%	103			30-130	Pass	
2.4.5-Trichlorophenol	S17-Oc18604	NCP	%	89			30-130	Pass	
2.4.6-Trichlorophenol	S17-Oc18604	NCP	%	102			30-130	Pass	
2.6-Dichlorophenol	S17-Oc18604	NCP	%	105			30-130	Pass	
Pentachlorophenol	S17-Oc23785	NCP	%	105			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Tetrachlorophenols - Total	S17-Oc18604	NCP	%	89			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S17-Oc20588	NCP	%	88			30-130	Pass	
2-Methyl-4.6-dinitrophenol	S17-Oc20588	NCP	%	81			30-130	Pass	
2-Nitrophenol	S17-Oc18604	NCP	%	106			30-130	Pass	
2.4-Dinitrophenol	S17-Oc20588	NCP	%	83			70-130	Pass	
4-Nitrophenol	S17-Oc18604	NCP	%	75			30-130	Pass	
Dinoseb	S17-Oc20588	NCP	%	89			30-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S17-Oc18760	CP	%	95			70-130	Pass	
Acenaphthylene	S17-Oc18760	CP	%	97			70-130	Pass	
Anthracene	S17-Oc18760	CP	%	102			70-130	Pass	
Benz(a)anthracene	S17-Oc18760	CP	%	98			70-130	Pass	
Benzo(a)pyrene	S17-Oc18760	CP	%	101			70-130	Pass	
Benzo(b&j)fluoranthene	S17-Oc18760	CP	%	99			70-130	Pass	
Benzo(g.h.i)perylene	S17-Oc18760	CP	%	84			70-130	Pass	
Benzo(k)fluoranthene	S17-Oc18760	CP	%	94			70-130	Pass	
Chrysene	S17-Oc18760	CP	%	97			70-130	Pass	
Dibenz(a.h)anthracene	S17-Oc18760	CP	%	95			70-130	Pass	
Fluoranthene	S17-Oc18760	CP	%	90			70-130	Pass	
Fluorene	S17-Oc18760	CP	%	97			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc18760	CP	%	88			70-130	Pass	
Naphthalene	S17-Oc18760	CP	%	93			70-130	Pass	
Phenanthrene	S17-Oc18760	CP	%	92			70-130	Pass	
Pyrene	S17-Oc18760	CP	%	91			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S17-Oc18760	CP	%	104			70-130	Pass	
Dimethoate	S17-Oc18760	CP	%	88			70-130	Pass	
Ethion	S17-Oc18760	CP	%	90			70-130	Pass	
Fenitrothion	S17-Oc18760	CP	%	77			70-130	Pass	
Methyl parathion	S17-Oc18760	CP	%	76			70-130	Pass	
Mevinphos	S17-Oc18760	CP	%	98			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
4-Chloro-3-methylphenol	S17-Oc18760	CP	%	92			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Methylphenol (o-Cresol)	S17-Oc18760	CP	%	104			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S17-Oc18760	CP	%	98			30-130	Pass	
Phenol	S17-Oc18760	CP	%	100			30-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S17-Oc18764	CP	%	90			70-130	Pass	
Acenaphthylene	S17-Oc18764	CP	%	91			70-130	Pass	
Anthracene	S17-Oc18764	CP	%	96			70-130	Pass	
Benz(a)anthracene	S17-Oc18764	CP	%	90			70-130	Pass	
Benzo(a)pyrene	S17-Oc18764	CP	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	S17-Oc18764	CP	%	93			70-130	Pass	
Benzo(g.h.i)perylene	S17-Oc18764	CP	%	80			70-130	Pass	
Benzo(k)fluoranthene	S17-Oc18764	CP	%	93			70-130	Pass	
Chrysene	S17-Oc18764	CP	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibenz(a.h)anthracene	S17-Oc18764	CP	%	90			70-130	Pass	
Fluoranthene	S17-Oc18764	CP	%	86			70-130	Pass	
Fluorene	S17-Oc18764	CP	%	90			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc18764	CP	%	82			70-130	Pass	
Naphthalene	S17-Oc18764	CP	%	88			70-130	Pass	
Phenanthrene	S17-Oc18764	CP	%	83			70-130	Pass	
Pyrene	S17-Oc18764	CP	%	87			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S17-Oc18764	CP	%	104			70-130	Pass	
Cadmium	S17-Oc18764	CP	%	100			70-130	Pass	
Chromium	S17-Oc18764	CP	%	89			70-130	Pass	
Copper	S17-Oc18764	CP	%	82			70-130	Pass	
Lead	S17-Oc18764	CP	%	103			70-130	Pass	
Mercury	S17-Oc18764	CP	%	109			70-130	Pass	
Nickel	S17-Oc18764	CP	%	84			70-130	Pass	
Zinc	S17-Oc18764	CP	%	111			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S17-Oc18765	CP	%	96			70-130	Pass	
TRH C10-C14	S17-Oc18765	CP	%	78			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S17-Oc18765	CP	%	101			70-130	Pass	
Toluene	S17-Oc18765	CP	%	99			70-130	Pass	
Ethylbenzene	S17-Oc18765	CP	%	99			70-130	Pass	
m&p-Xylenes	S17-Oc18765	CP	%	104			70-130	Pass	
o-Xylene	S17-Oc18765	CP	%	101			70-130	Pass	
Xylenes - Total	S17-Oc18765	CP	%	103			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S17-Oc18765	CP	%	93			70-130	Pass	
TRH C6-C10	S17-Oc18765	CP	%	91			70-130	Pass	
TRH >C10-C16	S17-Oc18765	CP	%	78			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S17-Oc18757	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S17-Oc18757	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S17-Oc18757	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S17-Oc18757	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S17-Oc18757	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S17-Oc18757	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S17-Oc18757	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Halogenated Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Halogenated Volatile Organics				Result 1	Result 2	RPD			
1.2-Dibromoethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S17-Oc18757	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S17-Oc18757	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	S17-Oc17187	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S17-Oc17187	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S17-Oc17187	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S17-Oc18610	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S17-Oc18610	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S17-Oc18610	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S17-Oc18610	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S17-Oc18610	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S17-Oc18610	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S17-Oc18610	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S17-Oc18610	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S17-Oc18610	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S17-Oc18610	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S17-Oc18763	CP	mg/kg	1.2	0.6	72	30%	Fail	Q15
Benz(a)anthracene	S17-Oc18763	CP	mg/kg	4.6	2.2	73	30%	Fail	Q15
Benzo(b&j)fluoranthene	S17-Oc18763	CP	mg/kg	4.1	2.0	69	30%	Fail	Q15
Benzo(g.h.i)perylene	S17-Oc18763	CP	mg/kg	2.6	1.4	59	30%	Fail	Q15
Benzo(k)fluoranthene	S17-Oc18763	CP	mg/kg	4.2	2.2	64	30%	Fail	Q15
Chrysene	S17-Oc18763	CP	mg/kg	4.7	2.2	70	30%	Fail	Q15
Dibenz(a.h)anthracene	S17-Oc18763	CP	mg/kg	0.7	< 0.5	69	30%	Fail	Q15
Fluorene	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc18763	CP	mg/kg	2.9	1.5	60	30%	Fail	Q15
Naphthalene	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S17-Oc18763	CP	mg/kg	3.4	1.8	61	30%	Fail	Q15
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S17-Oc18763	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S17-Oc18763	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S17-Oc18763	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S17-Oc18763	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S17-Oc18763	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S17-Oc18763	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S17-Oc18763	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S17-Oc18763	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	S17-Oc18763	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S17-Oc18763	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S17-Oc18763	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S17-Oc18763	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S17-Oc18763	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S17-Oc18763	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S17-Oc18763	CP	mg/kg	13	14	1.0	30%	Pass	
Cadmium	S17-Oc18763	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S17-Oc18763	CP	mg/kg	16	19	13	30%	Pass	
Copper	S17-Oc18763	CP	mg/kg	42	46	9.0	30%	Pass	
Lead	S17-Oc18763	CP	mg/kg	180	210	15	30%	Pass	
Mercury	S17-Oc18763	CP	mg/kg	0.1	< 0.1	36	30%	Fail	Q15
Nickel	S17-Oc18763	CP	mg/kg	41	35	17	30%	Pass	
Zinc	S17-Oc18763	CP	mg/kg	120	130	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-Oc18763	CP	%	11	12	14	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S17-Oc18764	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S17-Oc18764	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S17-Oc18764	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S17-Oc18764	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S17-Oc18764	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S17-Oc18764	CP	mg/kg	< 100	< 100	<1	30%	Pass	

Comments

New version to add QC.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Nibha Vaidya	Analytical Services Manager
Nibha Vaidya	Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name :** Keith Holden, Darshana Perera	**Purchase Order :** 2125491	**COC Number :**
Office Address :	**Project Manager :** Kamal Kamalarasa, Eric Tang	**PROJECT Number :** 21 25491 53	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** Paul McDougall, Hannah Dawson, Henry Luo	**PROJECT Name :** S2B Portion 4	**Data output format:**

Special Directions & Comments :

Plot all samples and in a jar and in a bag. Please freeze a small portion of the samples selected for pHf and pHfox if only jars are availble for future sPOCAS and Cr reducible sulphur.

A separate COC will be submitted for analysis of other parameters.

Eurofins | mgt DI water batch number:

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)	VOC			pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	SRT_LD681_0.2-0.5	13/10/2017	soil			x	x	x	x																
2	SRT_LD681_0.5-0.95	13/10/2017	soil																						
3	SRT_LD681_1.5-1.6	13/10/2017	soil	x																					
4	SRT_LD681_2.0-2.45	13/10/2017	soil																						
5	SRT_LD681_2.9-3.0	13/10/2017	soil																						
6	SRT_LD681_3.5-3.95	13/10/2017	soil																						
7	SRT_LD681_0.3-0.8	13/10/2017	soil																						
8	SRT_LD681_1.3-1.6	13/10/2017	soil																						
9	SRT_LD682_0.05-0.2	13/10/2017	soil			x		x																	
10	SRT_LD682_0.2-0.5	13/10/2017	soil				x		x																
11	SRT_LD682_0.5-0.95	13/10/2017	soil	x																					
12	SRT_LD682_2.0-2.45	13/10/2017	soil	x																					
13	SRT_LD682_1.4-1.6	13/10/2017	soil																						
14	SRT_LD682_3.5-3.95	13/10/2017	soil	x																					
15	SRT_LD682_0.2-0.6	13/10/2017	soil																						
16	SRT_LD682_1.2-1.7	13/10/2017	soil																						

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag	Sample comments:
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	

Laboratory Staff

Relinquished By: Henry Luo	**Received By:**
Date & Time : 16/10/2017 18:00	**Date & Time :** 16/10
Signature:	**Signature:**

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number: 568142 567820

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 4**	**Data output format:**

Special Directions & Comments :

Not all samples are in a jar and in a bag. Please freeze a small portion of the samples selected for pHf and pHfox if only jars are availble for future sPOCAS and Cr reducible sulphur.

A separate COC will be submitted for analysis of other parameters.

Eurofins | mgt DI water batch number:

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)	VOC		pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals							
1	SRT_LD683_0.05-0.15	13/10/2017	soil			x	x	x	x																
2	SRT_LD683_0.15-0.5	13/10/2017	soil	x																					
3	SRT_LD683_0.8-0.95	13/10/2017	soil																						
4	SRT_LD683_1.5-1.95	13/10/2017	soil	x																					
5	SRT_LD683_3.0-3.5	13/10/2017	soil																						
6	SRT_LD681_3.5-4.0	13/10/2017	soil	x																					
7	SRT_LD681_0.5-0.8	13/10/2017	soil																						
8	SRT_LD681_1.5-2.0	13/10/2017	soil																						
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1

Sample comments:

Laboratory Staff

Relinquished By: Henry Luo
Date & Time : 16/10/2017 18:00
Signature:

Received By: AB
Date & Time : 16/10
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number:
568142
567820

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention:	Kamal Kamalarasa
Report	568142-AID
Project Name	S2B PORTION 4
Project ID	212549153
Received Date	Oct 16, 2017
Date Reported	Oct 23, 2017

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS4964 method for inhomogeneous samples is around 0.1 g/kg (0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis where required, this is considered to be at the nominal reporting limit of 0.01 % (w / w).The examination of large sample sizes(500 mL is recommended) may improve the likelihood of identifying ACM in the > 2mm fraction.The NEPM screening level of 0.001 % (w / w) asbestos in soil for FA(friable asbestos) and AF(asbestos fines) then applies where they are able to be quantified by gravimetric procedures.This quantitative screening is not generally applicable to FF(free fibres) and results of Trace Analysis are referred. *NOTE: NATA News March 2014, p.7, states in relation to AS4964: "This is a qualitative method with a nominal reporting limit of 0.01%" and that currently in Australia "there is no validated method available for the quantification of asbestos". Accordingly, NATA Accreditation does not cover the performance of this service (indicated with an asterisk).* *This report is consistent with the analytical procedures and reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended) and the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009, including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil, June 2011.*

Project Name S2B PORTION 4
Project ID 212549153
Date Sampled Oct 13, 2017
Report 568142-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
SRT_LD681_0.2-0.5	17-Oc19969	Oct 13, 2017	Approximate Sample 26g Sample consisted of: Brown coarse grain soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
SRT_LD682_0.05-0.2	17-Oc19971	Oct 13, 2017	Approximate Sample 115g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
SRT_LD683_0.05-0.15	17-Oc19976	Oct 13, 2017	Approximate Sample 31g Sample consisted of: Brown fine grain soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Oct 18, 2017	Indefinite

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NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd NSW	**Order No.:**	2125491	**Received:**	Oct 16, 2017 12:52 PM
Address:	Level 15, 133 Castlereagh Street Sydney NSW 2000	**Report #:**	568142	**Due:**	Oct 23, 2017
		Phone:	02 9239 7100	**Priority:**	5 Day
		Fax:	02 9239 7199	**Contact Name:**	Kamal Kamalarasa
Project Name:	S2B PORTION 4				
Project ID:	212549153				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	Eurofins | mgt Suite B15	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	SRT_LD681_0.2-0.5	Oct 13, 2017		Soil	S17-Oc19969	X	X	X	X		X
2	SRT_LD681_1.5-1.6	Oct 13, 2017		Soil	S17-Oc19970				X	X	
3	SRT_LD682_0.05-0.2	Oct 13, 2017		Soil	S17-Oc19971	X	X		X		
4	SRT_LD682_0.2-0.5	Oct 13, 2017		Soil	S17-Oc19972			X	X		X
5	SRT_LD682_0.5-0.95	Oct 13, 2017		Soil	S17-Oc19973				X	X	
6	SRT_LD682_2	Oct 13, 2017		Soil	S17-Oc19974				X	X	

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web : www.eurofins.com.au

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Site # 23736

Company Name:	GHD Pty Ltd NSW	**Order No.:**	2125491	**Received:**	Oct 16, 2017 12:52 PM
Address:	Level 15, 133 Castlereagh Street Sydney NSW 2000	**Report #:**	568142	**Due:**	Oct 23, 2017
		Phone:	02 9239 7100	**Priority:**	5 Day
		Fax:	02 9239 7199	**Contact Name:**	Kamal Kamalarasa
Project Name:	S2B PORTION 4				
Project ID:	212549153				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	Eurofins | mgt Suite B15	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
	.0-2.45										
7	SRT_LD682_3 .5-3.95	Oct 13, 2017		Soil	S17-Oc19975				X	X	
8	SRT_LD683_0 .05-0.15	Oct 13, 2017		Soil	S17-Oc19976	X	X	X	X		X
9	SRT_LD683_0 .15-0.5	Oct 13, 2017		Soil	S17-Oc19977				X	X	
10	SRT_LD683_1 .5-1.95	Oct 13, 2017		Soil	S17-Oc19978				X	X	
11	SRT_LD681_3 .5-4.0	Oct 13, 2017		Soil	S17-Oc19979				X	X	
Test Counts						3	3	3	11	7	3

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substatntial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Matthew Quigley	Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

eurofins | mgt

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Kamal Kamalarasa**

Report **568142-S**
Project name S2B PORTION 4
Project ID 212549153
Received Date Oct 16, 2017

Client Sample ID			**SRT_LD681_0.2-0.5**	**SRT_LD681_1.5-1.6**	**SRT_LD682_0.05-0.2**	**SRT_LD682_0.2-0.5**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19969**	**S17-Oc19970**	**S17-Oc19971**	**S17-Oc19972**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	-	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	-	130
TRH C29-C36	50	mg/kg	< 50	< 50	-	130
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	-	260
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	85	104	-	71
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	-	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	-	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	-	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	-	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	-	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	-	-	< 0.5

Client Sample ID			SRT_LD681_0.2-0.5	SRT_LD681_1.5-1.6	SRT_LD682_0.05-0.2	SRT_LD682_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19969**	**S17-Oc19970**	**S17-Oc19971**	**S17-Oc19972**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Volatile Organics						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Bromoform	0.5	mg/kg	< 0.5	-	-	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	-	-	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	-	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Chloroform	0.5	mg/kg	< 0.5	-	-	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	-	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	-	-	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Styrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	-	-	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	-	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	-	-	< 0.5
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	-	-	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	-	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	-	< 0.5
4-Bromofluorobenzene (surr.)	1	%	85	-	-	71
Toluene-d8 (surr.)	1	%	83	-	-	76
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	-	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	-	200
TRH >C34-C40	100	mg/kg	< 100	< 100	-	110

Client Sample ID			SRT_LD681_0.2-0.5	SRT_LD681_1.5-1.6	SRT_LD682_0.05-0.2	SRT_LD682_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19969**	**S17-Oc19970**	**S17-Oc19971**	**S17-Oc19972**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	0.6
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	0.7
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	1.3
2-Fluorobiphenyl (surr.)	1	%	95	97	-	78
p-Terphenyl-d14 (surr.)	1	%	103	108	-	96
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	95	-	90	-
Tetrachloro-m-xylene (surr.)	1	%	106	-	92	-

Client Sample ID			SRT_LD681_0.2-0.5	SRT_LD681_1.5-1.6	SRT_LD682_0.05-0.2	SRT_LD682_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19969**	**S17-Oc19970**	**S17-Oc19971**	**S17-Oc19972**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Coumaphos	2	mg/kg	< 2	-	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	-	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	-	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	-	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	-	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	-	< 0.2	-
EPN	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Monocrotophos	2	mg/kg	< 2	-	< 2	-
Naled	0.2	mg/kg	< 0.2	-	< 0.2	-
Omethoate	2	mg/kg	< 2	-	< 2	-
Phorate	0.2	mg/kg	< 0.2	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	-	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	-	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	101	-	102	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1232	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1242	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1248	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1254	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1260	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PCB*	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibutylchlorendate (surr.)	1	%	95	-	90	-
Tetrachloro-m-xylene (surr.)	1	%	106	-	92	-

Client Sample ID			SRT_LD681_0.2-0.5	SRT_LD681_1.5-1.6	SRT_LD682_0.05-0.2	SRT_LD682_0.2-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19969**	**S17-Oc19970**	**S17-Oc19971**	**S17-Oc19972**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	-	-	< 1
Pentachlorophenol	1.0	mg/kg	< 1	-	-	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	< 0.2
2-Nitrophenol	1	mg/kg	< 1	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	< 0.4
4-Nitrophenol	5	mg/kg	< 5	-	-	< 5
Dinoseb	20	mg/kg	< 20	-	-	< 20
Phenol	0.5	mg/kg	< 0.5	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	< 20
Phenol-d6 (surr.)	1	%	82	-	-	45
Heavy Metals						
Arsenic	2	mg/kg	9.9	3.3	-	15
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	0.8
Chromium	5	mg/kg	31	< 5	-	35
Copper	5	mg/kg	6.6	5.8	-	200
Lead	5	mg/kg	33	9.4	-	370
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	0.1
Nickel	5	mg/kg	5.3	< 5	-	36
Zinc	5	mg/kg	15	< 5	-	1500
% Moisture	1	%	21	20	9.0	16

Client Sample ID			SRT_LD682_0.5-0.95	SRT_LD682_2.0-2.45	SRT_LD682_3.5-3.95	SRT_LD683_0.05-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19973**	**S17-Oc19974**	**S17-Oc19975**	**S17-Oc19976**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	400
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	310
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	710

Client Sample ID			SRT_LD682_0.5-0.95	SRT_LD682_2.0-2.45	SRT_LD682_3.5-3.95	SRT_LD683_0.05-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19973**	**S17-Oc19974**	**S17-Oc19975**	**S17-Oc19976**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	96	90	86
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1-Dichloroethene	0.5	mg/kg	-	-	-	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	-	-	< 0.5
1.2-Dibromoethane	0.5	mg/kg	-	-	-	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1.2-Dichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.2-Dichloropropane	0.5	mg/kg	-	-	-	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	-	-	-	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	-	-	-	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1.3-Dichloropropane	0.5	mg/kg	-	-	-	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	-	-	-	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
2-Butanone (MEK)	0.5	mg/kg	-	-	-	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	-	-	-	< 0.5
4-Chlorotoluene	0.5	mg/kg	-	-	-	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	-	-	< 0.5
Allyl chloride	0.5	mg/kg	-	-	-	< 0.5
Benzene	0.1	mg/kg	-	-	-	< 0.1
Bromobenzene	0.5	mg/kg	-	-	-	< 0.5
Bromochloromethane	0.5	mg/kg	-	-	-	< 0.5
Bromodichloromethane	0.5	mg/kg	-	-	-	< 0.5
Bromoform	0.5	mg/kg	-	-	-	< 0.5
Bromomethane	0.5	mg/kg	-	-	-	< 0.5
Carbon disulfide	0.5	mg/kg	-	-	-	< 0.5
Carbon Tetrachloride	0.5	mg/kg	-	-	-	< 0.5
Chlorobenzene	0.5	mg/kg	-	-	-	< 0.5
Chloroethane	0.5	mg/kg	-	-	-	< 0.5
Chloroform	0.5	mg/kg	-	-	-	< 0.5
Chloromethane	0.5	mg/kg	-	-	-	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	-	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	-	< 0.5
Dibromochloromethane	0.5	mg/kg	-	-	-	< 0.5
Dibromomethane	0.5	mg/kg	-	-	-	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	-	-	-	< 0.5
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
Iodomethane	0.5	mg/kg	-	-	-	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	-	-	-	< 0.5

Client Sample ID			SRT_LD682_0.5-0.95	SRT_LD682_2.0-2.45	SRT_LD682_3.5-3.95	SRT_LD683_0.05-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19973**	**S17-Oc19974**	**S17-Oc19975**	**S17-Oc19976**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Volatile Organics						
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
Methylene Chloride	0.5	mg/kg	-	-	-	< 0.5
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Styrene	0.5	mg/kg	-	-	-	< 0.5
Tetrachloroethene	0.5	mg/kg	-	-	-	< 0.5
Toluene	0.1	mg/kg	-	-	-	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	-	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	-	< 0.5
Trichloroethene	0.5	mg/kg	-	-	-	< 0.5
Trichlorofluoromethane	0.5	mg/kg	-	-	-	< 0.5
Vinyl chloride	0.5	mg/kg	-	-	-	< 0.5
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
Total MAH*	0.5	mg/kg	-	-	-	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	-	-	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	-	-	< 0.5
4-Bromofluorobenzene (surr.)	1	%	-	-	-	86
Toluene-d8 (surr.)	1	%	-	-	-	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	570
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	220
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	12
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	12
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	12
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.3
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	6.6
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	7.9
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	5.8
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	4.9
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	6.7
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	6.6
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.8
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	12
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.6
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	4.3
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	6.0
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	12
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	78
2-Fluorobiphenyl (surr.)	1	%	76	68	68	50
p-Terphenyl-d14 (surr.)	1	%	104	111	115	106

Client Sample ID			SRT_LD682_0.5-0.95	SRT_LD682_2.0-2.45	SRT_LD682_3.5-3.95	SRT_LD683_0.05-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19973**	**S17-Oc19974**	**S17-Oc19975**	**S17-Oc19976**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	74
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	71
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Bolstar	0.2	mg/kg	-	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.2
Coumaphos	2	mg/kg	-	-	-	< 2
Demeton-S	0.2	mg/kg	-	-	-	< 0.2
Demeton-O	0.2	mg/kg	-	-	-	< 0.2
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Dichlorvos	0.2	mg/kg	-	-	-	< 0.2
Dimethoate	0.2	mg/kg	-	-	-	< 0.2
Disulfoton	0.2	mg/kg	-	-	-	< 0.2
EPN	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.2	mg/kg	-	-	-	< 0.2
Ethoprop	0.2	mg/kg	-	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	-	-	< 0.2
Fenitrothion	0.2	mg/kg	-	-	-	< 0.2
Fensulfothion	0.2	mg/kg	-	-	-	< 0.2
Fenthion	0.2	mg/kg	-	-	-	< 0.2
Malathion	0.2	mg/kg	-	-	-	< 0.2
Merphos	0.2	mg/kg	-	-	-	< 0.2

Client Sample ID			SRT_LD682_0.5-0.95	SRT_LD682_2.0-2.45	SRT_LD682_3.5-3.95	SRT_LD683_0.05-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19973**	**S17-Oc19974**	**S17-Oc19975**	**S17-Oc19976**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	-	-	-	< 0.2
Mevinphos	0.2	mg/kg	-	-	-	< 0.2
Monocrotophos	2	mg/kg	-	-	-	< 2
Naled	0.2	mg/kg	-	-	-	< 0.2
Omethoate	2	mg/kg	-	-	-	< 2
Phorate	0.2	mg/kg	-	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Pyrazophos	0.2	mg/kg	-	-	-	< 0.2
Ronnel	0.2	mg/kg	-	-	-	< 0.2
Terbufos	0.2	mg/kg	-	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.2
Tokuthion	0.2	mg/kg	-	-	-	< 0.2
Trichloronate	0.2	mg/kg	-	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	-	106
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	-	< 0.5
Total PCB*	0.5	mg/kg	-	-	-	< 0.5
Dibutylchlorendate (surr.)	1	%	-	-	-	74
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	71
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	-	-	-	< 1
Pentachlorophenol	1.0	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	1.0	mg/kg	-	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Nitrophenol	1	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20
Phenol	0.5	mg/kg	-	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20
Phenol-d6 (surr.)	1	%	-	-	-	INT

Client Sample ID			SRT_LD682_0.5-0.95	SRT_LD682_2.0-2.45	SRT_LD682_3.5-3.95	SRT_LD683_0.05-0.15
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19973**	**S17-Oc19974**	**S17-Oc19975**	**S17-Oc19976**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	11	62	9.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	8.6	9.3	21
Copper	5	mg/kg	11	27	36	59
Lead	5	mg/kg	7.9	8.2	29	150
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1
Nickel	5	mg/kg	< 5	< 5	6.2	14
Zinc	5	mg/kg	14	< 5	32	99
% Moisture	1	%	17	11	16	15

Client Sample ID			SRT_LD683_0.15-0.5	SRT_LD683_1.5-1.95	SRT_LD681_3.5-4.0
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19977**	**S17-Oc19978**	**S17-Oc19979**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	110	< 50	< 50
TRH C29-C36	50	mg/kg	120	52	< 50
TRH C10-36 (Total)	50	mg/kg	230	52	< 50
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	63	95	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	180	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.7	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.9	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.1	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.3	< 0.5	< 0.5

Client Sample ID			SRT_LD683_0.15-0.5	SRT_LD683_1.5-1.95	SRT_LD681_3.5-4.0
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc19977**	**S17-Oc19978**	**S17-Oc19979**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	0.9	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	0.6	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.0	< 0.5	< 0.5
Chrysene	0.5	mg/kg	1.2	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.3	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.6	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.1	< 0.5	< 0.5
Pyrene	0.5	mg/kg	2.3	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	12.4	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	80	61	80
p-Terphenyl-d14 (surr.)	1	%	93	100	100
Heavy Metals					
Arsenic	2	mg/kg	5.4	< 2	2.8
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	18	15	13
Copper	5	mg/kg	15	< 5	< 5
Lead	5	mg/kg	44	15	6.4
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	6.7	< 5	< 5
Zinc	5	mg/kg	25	10	< 5
% Moisture	1	%	26	18	17

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 18, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Phenols (Halogenated)	Sydney	Oct 18, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Sydney	Oct 18, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Metals M8	Sydney	Oct 18, 2017	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Volatile Organics	Sydney	Oct 18, 2017	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Sydney	Oct 18, 2017	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Oct 18, 2017	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Oct 18, 2017	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Oct 18, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: GHD Pty Ltd NSW
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Project Name: S2B PORTION 4
Project ID: 212549153

Order No.: 2125491
Report #: 568142
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 16, 2017 12:52 PM
Due: Oct 23, 2017
Priority: 5 Day
Contact Name: Kamal Kamalarasa

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	Eurofins | mgt Suite B15	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	SRT_LD681_0.2-0.5	Oct 13, 2017		Soil	S17-Oc19969	X	X	X	X		X
2	SRT_LD681_1.5-1.6	Oct 13, 2017		Soil	S17-Oc19970				X	X	
3	SRT_LD682_0.05-0.2	Oct 13, 2017		Soil	S17-Oc19971	X	X		X		
4	SRT_LD682_0.2-0.5	Oct 13, 2017		Soil	S17-Oc19972			X	X		X
5	SRT_LD682_0.5-0.95	Oct 13, 2017		Soil	S17-Oc19973				X	X	
6	SRT_LD682_2	Oct 13, 2017		Soil	S17-Oc19974				X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
	.0-2.45										
7	SRT_LD682_3 .5-3.95	Oct 13, 2017		Soil	S17-Oc19975				X	X	
8	SRT_LD683_0 .05-0.15	Oct 13, 2017		Soil	S17-Oc19976	X	X	X	X		X
9	SRT_LD683_0 .15-0.5	Oct 13, 2017		Soil	S17-Oc19977				X	X	
10	SRT_LD683_1 .5-1.95	Oct 13, 2017		Soil	S17-Oc19978				X	X	
11	SRT_LD681_3 .5-4.0	Oct 13, 2017		Soil	S17-Oc19979				X	X	
Test Counts						3	3	3	11	7	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	124			70-130	Pass	
TRH C10-C14	%	91			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	115			70-130	Pass	
Toluene	%	112			70-130	Pass	
Ethylbenzene	%	116			70-130	Pass	
m&p-Xylenes	%	120			70-130	Pass	
o-Xylene	%	114			70-130	Pass	
Xylenes - Total	%	118			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	91			70-130	Pass	
1.1.1-Trichloroethane	%	75			70-130	Pass	
1.2-Dichlorobenzene	%	106			70-130	Pass	
1.2-Dichloroethane	%	86			70-130	Pass	
Benzene	%	79			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	93			70-130	Pass	
o-Xylene	%	87			70-130	Pass	
Toluene	%	85			70-130	Pass	
Trichloroethene	%	86			70-130	Pass	
Xylenes - Total	%	91			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	105			70-130	Pass	
TRH C6-C10	%	117			70-130	Pass	
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	88			70-130	Pass	
Acenaphthylene	%	90			70-130	Pass	
Anthracene	%	80			70-130	Pass	
Benz(a)anthracene	%	90			70-130	Pass	
Benzo(a)pyrene	%	88			70-130	Pass	
Benzo(b&j)fluoranthene	%	79			70-130	Pass	
Benzo(g.h.i)perylene	%	90			70-130	Pass	
Benzo(k)fluoranthene	%	98			70-130	Pass	
Chrysene	%	88			70-130	Pass	
Dibenz(a.h)anthracene	%	94			70-130	Pass	
Fluoranthene	%	88			70-130	Pass	
Fluorene	%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	87			70-130	Pass	
Naphthalene	%	87			70-130	Pass	
Phenanthrene	%	94			70-130	Pass	
Pyrene	%	89			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	80			70-130	Pass	
4.4'-DDE	%	80			70-130	Pass	
4.4'-DDT	%	96			70-130	Pass	
a-BHC	%	88			70-130	Pass	
Aldrin	%	80			70-130	Pass	
b-BHC	%	80			70-130	Pass	
d-BHC	%	80			70-130	Pass	
Dieldrin	%	80			70-130	Pass	
Endosulfan I	%	80			70-130	Pass	
Endosulfan II	%	88			70-130	Pass	
Endosulfan sulphate	%	80			70-130	Pass	
Endrin	%	104			70-130	Pass	
Endrin aldehyde	%	80			70-130	Pass	
Endrin ketone	%	80			70-130	Pass	
g-BHC (Lindane)	%	88			70-130	Pass	
Heptachlor	%	96			70-130	Pass	
Heptachlor epoxide	%	88			70-130	Pass	
Hexachlorobenzene	%	88			70-130	Pass	
Methoxychlor	%	96			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	83			70-130	Pass	
Dimethoate	%	73			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethion	%	71			70-130	Pass	
Fenitrothion	%	70			70-130	Pass	
Methyl parathion	%	70			70-130	Pass	
Mevinphos	%	83			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	83			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	90			30-130	Pass	
2.4-Dichlorophenol	%	93			30-130	Pass	
2.4.5-Trichlorophenol	%	78			30-130	Pass	
2.4.6-Trichlorophenol	%	87			30-130	Pass	
2.6-Dichlorophenol	%	84			30-130	Pass	
4-Chloro-3-methylphenol	%	85			30-130	Pass	
Pentachlorophenol	%	83			30-130	Pass	
Tetrachlorophenols - Total	%	81			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Methyl-4.6-dinitrophenol	%	73			30-130	Pass	
2-Methylphenol (o-Cresol)	%	88			30-130	Pass	
2-Nitrophenol	%	86			30-130	Pass	
2.4-Dinitrophenol	%	72			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	87			30-130	Pass	
4-Nitrophenol	%	83			30-130	Pass	
Dinoseb	%	72			30-130	Pass	
Phenol	%	89			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	112			70-130	Pass	
Cadmium	%	111			70-130	Pass	
Chromium	%	115			70-130	Pass	
Copper	%	115			70-130	Pass	
Lead	%	106			70-130	Pass	
Mercury	%	115			70-130	Pass	
Nickel	%	115			70-130	Pass	
Zinc	%	111			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDT	S17-Oc18757	NCP	%	80			70-130	Pass	
Methoxychlor	S17-Oc18757	NCP	%	104			70-130	Pass	
Toxaphene	S17-Oc17757	NCP	%	128			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	S17-Oc13821	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
Tetrachlorophenols - Total	S17-Oc21994	NCP	%	88			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S17-Oc20588	NCP	%	88			30-130	Pass	
2-Methyl-4.6-dinitrophenol	S17-Oc20588	NCP	%	81			30-130	Pass	
2.4-Dinitrophenol	S17-Oc20588	NCP	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dinoseb	S17-Oc20588	NCP	%	89			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Copper	S17-Oc18803	NCP	%	102			70-130	Pass	
Lead	S17-Oc18803	NCP	%	112			70-130	Pass	
Zinc	S17-Oc18803	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S17-Oc19971	CP	%	97			70-130	Pass	
Acenaphthylene	S17-Oc19971	CP	%	100			70-130	Pass	
Anthracene	S17-Oc19971	CP	%	90			70-130	Pass	
Benz(a)anthracene	S17-Oc19971	CP	%	98			70-130	Pass	
Benzo(a)pyrene	S17-Oc19971	CP	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	S17-Oc19971	CP	%	89			70-130	Pass	
Benzo(g.h.i)perylene	S17-Oc19971	CP	%	87			70-130	Pass	
Benzo(k)fluoranthene	S17-Oc19971	CP	%	100			70-130	Pass	
Chrysene	S17-Oc19971	CP	%	95			70-130	Pass	
Dibenz(a.h)anthracene	S17-Oc19971	CP	%	97			70-130	Pass	
Fluoranthene	S17-Oc19971	CP	%	93			70-130	Pass	
Fluorene	S17-Oc19971	CP	%	100			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc19971	CP	%	88			70-130	Pass	
Naphthalene	S17-Oc19971	CP	%	97			70-130	Pass	
Phenanthrene	S17-Oc19971	CP	%	101			70-130	Pass	
Pyrene	S17-Oc19971	CP	%	93			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	S17-Oc19971	CP	%	120			70-130	Pass	
4.4'-DDE	S17-Oc19971	CP	%	104			70-130	Pass	
a-BHC	S17-Oc19971	CP	%	88			70-130	Pass	
Aldrin	S17-Oc19971	CP	%	88			70-130	Pass	
b-BHC	S17-Oc19971	CP	%	80			70-130	Pass	
d-BHC	S17-Oc19971	CP	%	80			70-130	Pass	
Dieldrin	S17-Oc19971	CP	%	120			70-130	Pass	
Endosulfan I	S17-Oc19971	CP	%	80			70-130	Pass	
Endosulfan II	S17-Oc19971	CP	%	88			70-130	Pass	
Endosulfan sulphate	S17-Oc19971	CP	%	80			70-130	Pass	
Endrin	S17-Oc19971	CP	%	80			70-130	Pass	
Endrin aldehyde	S17-Oc19971	CP	%	80			70-130	Pass	
Endrin ketone	S17-Oc19971	CP	%	80			70-130	Pass	
g-BHC (Lindane)	S17-Oc19971	CP	%	88			70-130	Pass	
Heptachlor	S17-Oc19971	CP	%	72			70-130	Pass	
Heptachlor epoxide	S17-Oc19971	CP	%	88			70-130	Pass	
Hexachlorobenzene	S17-Oc19971	CP	%	88			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S17-Oc19971	CP	%	91			70-130	Pass	
Dimethoate	S17-Oc19971	CP	%	71			70-130	Pass	
Ethion	S17-Oc19971	CP	%	85			70-130	Pass	
Fenitrothion	S17-Oc19971	CP	%	71			70-130	Pass	
Methyl parathion	S17-Oc19971	CP	%	70			70-130	Pass	
Mevinphos	S17-Oc19971	CP	%	82			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S17-Oc19971	CP	%	93			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dichlorophenol	S17-Oc19971	CP	%	87			30-130	Pass	
2.4.5-Trichlorophenol	S17-Oc19971	CP	%	80			30-130	Pass	
2.4.6-Trichlorophenol	S17-Oc19971	CP	%	82			30-130	Pass	
2.6-Dichlorophenol	S17-Oc19971	CP	%	86			30-130	Pass	
4-Chloro-3-methylphenol	S17-Oc19971	CP	%	88			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Methylphenol (o-Cresol)	S17-Oc19971	CP	%	95			30-130	Pass	
2-Nitrophenol	S17-Oc19971	CP	%	93			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S17-Oc19971	CP	%	93			30-130	Pass	
4-Nitrophenol	S17-Oc19971	CP	%	73			30-130	Pass	
Phenol	S17-Oc19971	CP	%	95			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S17-Oc19972	CP	%	110			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S17-Oc19972	CP	%	123			70-130	Pass	
Toluene	S17-Oc19972	CP	%	124			70-130	Pass	
Ethylbenzene	S17-Oc19972	CP	%	124			70-130	Pass	
m&p-Xylenes	S17-Oc19972	CP	%	123			70-130	Pass	
o-Xylene	S17-Oc19972	CP	%	116			70-130	Pass	
Xylenes - Total	S17-Oc19972	CP	%	121			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	S17-Oc19972	CP	%	91			70-130	Pass	
1.1.1-Trichloroethane	S17-Oc19972	CP	%	103			70-130	Pass	
1.2-Dichlorobenzene	S17-Oc19972	CP	%	115			70-130	Pass	
1.2-Dichloroethane	S17-Oc19972	CP	%	127			70-130	Pass	
Trichloroethene	S17-Oc19972	CP	%	129			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S17-Oc19972	CP	%	116			70-130	Pass	
TRH C6-C10	S17-Oc19972	CP	%	93			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S17-Oc19972	CP	%	111			70-130	Pass	
Cadmium	S17-Oc19972	CP	%	82			70-130	Pass	
Chromium	S17-Oc19972	CP	%	125			70-130	Pass	
Mercury	S17-Oc19972	CP	%	88			70-130	Pass	
Nickel	S17-Oc19972	CP	%	88			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S17-Oc19978	CP	%	106			70-130	Pass	
TRH C10-C14	S17-Oc19978	CP	%	84			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S17-Oc19978	CP	%	111			70-130	Pass	
Toluene	S17-Oc19978	CP	%	106			70-130	Pass	
Ethylbenzene	S17-Oc19978	CP	%	108			70-130	Pass	
m&p-Xylenes	S17-Oc19978	CP	%	113			70-130	Pass	
o-Xylene	S17-Oc19978	CP	%	108			70-130	Pass	
Xylenes - Total	S17-Oc19978	CP	%	111			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S17-Oc19978	CP	%	115			70-130	Pass	
TRH C6-C10	S17-Oc19978	CP	%	103			70-130	Pass	
TRH >C10-C16	S17-Oc19978	CP	%	84			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S17-Oc19969	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S17-Oc19969	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S17-Oc19969	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S17-Oc19969	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S17-Oc19969	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S17-Oc19969	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S17-Oc19969	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromobenzene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Dichlorodifluoromethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Styrene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S17-Oc19969	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S17-Oc19969	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S17-Oc18610	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S17-Oc18610	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S17-Oc18610	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S17-Oc18610	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S17-Oc17737	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S17-Oc17737	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S17-Oc17737	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S17-Oc17737	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S17-Oc17737	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S17-Oc17737	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S17-Oc17737	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S17-Oc18802	NCP	mg/kg	3.1	3.3	6.0	30%	Pass	
Cadmium	S17-Oc18802	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S17-Oc18802	NCP	mg/kg	6.6	6.9	5.0	30%	Pass	
Copper	S17-Oc18802	NCP	mg/kg	20	21	5.0	30%	Pass	
Lead	S17-Oc18802	NCP	mg/kg	62	65	5.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Mercury	S17-Oc18802	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S17-Oc18802	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S17-Oc18802	NCP	mg/kg	68	70	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-Oc19969	CP	%	21	21	1.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S17-Oc19977	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S17-Oc19977	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S17-Oc19977	CP	mg/kg	110	120	5.0	30%	Pass	
TRH C29-C36	S17-Oc19977	CP	mg/kg	120	140	17	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S17-Oc19977	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S17-Oc19977	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S17-Oc19977	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S17-Oc19977	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S17-Oc19977	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S17-Oc19977	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S17-Oc19977	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S17-Oc19977	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S17-Oc19977	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S17-Oc19977	CP	mg/kg	180	200	12	30%	Pass	
TRH >C34-C40	S17-Oc19977	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S17-Oc19977	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S17-Oc19977	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S17-Oc19977	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S17-Oc19977	CP	mg/kg	1.1	1.4	26	30%	Pass	
Benzo(a)pyrene	S17-Oc19977	CP	mg/kg	1.3	1.7	30	30%	Pass	
Benzo(b&j)fluoranthene	S17-Oc19977	CP	mg/kg	0.9	1.2	28	30%	Pass	
Benzo(g.h.i)perylene	S17-Oc19977	CP	mg/kg	0.6	0.8	30	30%	Pass	
Benzo(k)fluoranthene	S17-Oc19977	CP	mg/kg	1.0	1.4	29	30%	Pass	
Chrysene	S17-Oc19977	CP	mg/kg	1.2	1.5	25	30%	Pass	
Dibenz(a.h)anthracene	S17-Oc19977	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S17-Oc19977	CP	mg/kg	2.3	2.9	23	30%	Pass	
Fluorene	S17-Oc19977	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc19977	CP	mg/kg	0.6	0.9	32	30%	Fail	Q15
Naphthalene	S17-Oc19977	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S17-Oc19977	CP	mg/kg	1.1	1.4	21	30%	Pass	
Pyrene	S17-Oc19977	CP	mg/kg	2.3	3.0	26	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S17-Oc19979	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S17-Oc19979	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S17-Oc19979	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S17-Oc19979	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S17-Oc19979	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S17-Oc19979	CP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S17-Oc19979	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S17-Oc19979	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S17-Oc19979	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S17-Oc19979	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S17-Oc19979	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S17-Oc19979	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S17-Oc19979	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S17-Oc19979	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S17-Oc19979	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S17-Oc19979	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S17-Oc19979	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	S17-Oc19979	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S17-Oc19979	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S17-Oc19979	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S17-Oc19979	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S17-Oc19979	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S17-Oc19979	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-Oc19979	CP	%	17	16	3.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Nibha Vaidya	Analytical Services Manager
Nibha Vaidya	Senior Analyst-Asbestos (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

COC NSW

From: Nibha Vaidya
Sent: Monday, 16 October 2017 4:45 PM
To: Enviro Sample NSW; COC NSW
Subject: 5 DAY TAT - FW: Eurofins | mgt Sample Receipt Advice - Report 566778 : Site S2B PORTION 5 (21 25491 53)

Follow Up Flag: Follow up
Flag Status: Flagged

Additional analysis please – 5 day TAT

Kind Regards,

Nibha Vaidya
Phone : +61 2 9900 8415
Mobile : +61 499 900 805
Email : NibhaVaidya@eurofins.com

From: Henry Luo [mailto:Henry.Luo@ghd.com]
Sent: Monday, 16 October 2017 4:35 PM
To: Nibha Vaidya
Subject: FW: Eurofins | mgt Sample Receipt Advice - Report 566778 : Site S2B PORTION 5 (21 25491 53)

Hi Nibha

Can you please organise the analysis of Halogenated Volatile Organics (HALVOL) for the following samples of this sample batch?

1) RCD-G01_0.2-0.4
2) RCD-G04_0.8
3) RCD-G02_0.2-0.3
4) RCD-G03_0.2-0.4

Five days turnaround should be all right.

Kind regards

Henry

From: EnviroSampleNSW@eurofins.com [mailto:EnviroSampleNSW@eurofins.com]
Sent: Monday, 9 October 2017 6:56 PM
To: Paul McDougall <Paul.McDougall@ghd.com>
Cc: Henry Luo <Henry.Luo@ghd.com>; Hannah Dawson <Hannah.Dawson@ghd.com>
Subject: Eurofins | mgt Sample Receipt Advice - Report 566778 : Site S2B PORTION 5 (21 25491 53)

Dear Valued Client,

Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers

as well as the requested analysis. If there are any irregularities then please contact your Eurofins | mgt Analytical Services Manager as soon as possible to make certain that they get changed.

Regards

Ursula Long
Sample Receipt

Eurofins | mgt
Unit F3, Parkview Building
16 Mars Road
LANE COVE WEST NSW 2066
AUSTRALIA
Phone: +61 299 008 400
Email: EnviroSampleNSW@eurofins.com
Website:environment.eurofins.com.au
EnviroNote 1072 - NATA Accreditation for AirToxics Brisbane
EnviroNote 1073 - 1,4-Dioxane : a new Contaminant of Concern?

eurofins | mgt

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **568310-S**
Project name ADDITIONAL - S2B PORTION 5
Project ID 21 25491 53
Received Date Oct 16, 2017

Client Sample ID			**RCD-G01_0.2-0.4**	**RCD-G04_0.8**	**RCD-G02_0.2-0.3**	**RCD-G03_0.2-0.4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc21074**	**S17-Oc21075**	**S17-Oc21076**	**S17-Oc21077**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Halogenated Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Iodomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Methylene Chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorobenzene (surr.)	1	%	107	98	101	92

Client Sample ID			RCD-G01_0.2-0.4	RCD-G04_0.8	RCD-G02_0.2-0.3	RCD-G03_0.2-0.4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc21074**	**S17-Oc21075**	**S17-Oc21076**	**S17-Oc21077**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
% Moisture	1	%	7.0	14	7.7	23

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Halogenated Volatile Organics	Sydney	Oct 20, 2017	7 Day
- Method: E016 Volatile Halogenated Compounds (VHC)			
% Moisture	Sydney	Oct 19, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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NATA # 1261
Site # 1254 & 14271

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16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: ADDITIONAL - S2B PORTION 5
Project ID: 21 25491 53

Order No.:
Report #: 568310
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 16, 2017 4:45 PM
Due: Oct 23, 2017
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Halogenated Volatile Organics	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	RCD-G01_0.2-0.4	Oct 04, 2017		Soil	S17-Oc21074	X	X
2	RCD-G04_0.8	Oct 04, 2017		Soil	S17-Oc21075	X	X
3	RCD-G02_0.2-0.3	Oct 04, 2017		Soil	S17-Oc21076	X	X
4	RCD-G03_0.2-0.4	Oct 04, 2017		Soil	S17-Oc21077	X	X
Test Counts						4	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Halogenated Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Halogenated Volatile Organics							
1.1-Dichloroethene	%	107			70-130	Pass	
1.1.1-Trichloroethane	%	97			70-130	Pass	
1.2-Dichlorobenzene	%	126			70-130	Pass	
1.2-Dichloroethane	%	110			70-130	Pass	
Trichloroethene	%	121			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Halogenated Volatile Organics				Result 1					
1.1-Dichloroethene	S17-Oc21075	CP	%	72			70-130	Pass	
1.1.1-Trichloroethane	S17-Oc21075	CP	%	71			70-130	Pass	
1.2-Dichlorobenzene	S17-Oc21075	CP	%	81			70-130	Pass	
1.2-Dichloroethane	S17-Oc21075	CP	%	79			70-130	Pass	
Trichloroethene	S17-Oc21075	CP	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Halogenated Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	S17-Oc21074	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-Oc21074	CP	%	7.0	7.0	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Nibha Vaidya Analytical Services Manager

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Enviro Sample NSW

From: Nibha Vaidya
Sent: Friday, 27 October 2017 4:55 PM
To: Enviro Sample NSW; COC NSW
Subject: 5 DAY TAT - FW: Additional TCLP Analysis - GHD 212549153

Follow Up Flag: Follow up
Flag Status: Flagged

Additional TCLP please – 5 day TAT

Please send SRA today.

Kind Regards,

Nibha Vaidya
Phone : +61 2 9900 8415
Mobile : +61 499 900 805
Email : NibhaVaidya@eurofins.com

From: Terry Nham [mailto:Terry.Nham@ghd.com]
Sent: Friday, 27 October 2017 4:33 PM
To: Nibha Vaidya
Cc: Henry Luo
Subject: Additional TCLP Analysis - GHD 212549153

Hi Nibha,
Another batch of samples for TCLP, also for standard turnaround, please see below.

Report #566778
RCD-G01_0.2-0.4 (PAHs)
RCD-G02_0.2-0.3 (Chromium, Lead, Nickel, and PAHs)
RCD-G02_1.1-1.2 (PAHs)
RCD-G03_0.2-0.4 (Lead and PAHs)

Report #567987
RCD-G05_0.2-0.5 (Chromium, Lead, and Nickel)
RCD-G06_0.1-0.4 (Lead, Nickel and PAHs)

Report #568142
SRT_LD682_0.2-0.5 (Lead)
SRT_LD683_0.05-0.15 (Lead and PAHs)
SRT_LD683_0.15-0.5 (PAHs)

Please let me know if this is alright?

Regards,

Terry

Terry Nham
Environmental Scientist

Contamination Assessment and Remediation

GHD
T: 61 2 9239 7393 | F: 61 2 9239 7199 | V: 217393 | M: 0403 251 883 | E: terry.nham@ghd.com
Level 15, 133 Castlereagh St Sydney NSW 2000 Australia | http://www.ghd.com/
Water | Energy & Resources | Environment | Property & Buildings | Transportation

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30 years Testing For Life 1987–2017
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Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **570031-L**
Project name ADDITIONAL - S2B PORTION 5
Project ID 21 25491 53
Received Date Oct 27, 2017

Client Sample ID			**RCD-G01_0.2-0.4**	**RCD-G02_0.2-0.3**	**RCD-G02_1.1-1.2**	**RCD-G03_0.2-0.4**
Sample Matrix			**US Leachate**	**US Leachate**	**US Leachate**	**US Leachate**
Eurofins | mgt Sample No.			**S17-Oc33376**	**S17-Oc33377**	**S17-Oc33378**	**S17-Oc33379**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.002	< 0.001	< 0.002	< 0.001
Acenaphthylene	0.001	mg/L	< 0.002	< 0.001	0.004	< 0.001
Anthracene	0.001	mg/L	< 0.002	< 0.001	0.007	< 0.001
Benz(a)anthracene	0.001	mg/L	0.002	< 0.001	0.028	< 0.001
Benzo(a)pyrene	0.001	mg/L	0.002	< 0.001	0.032	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	0.002	< 0.001	0.031	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	0.002	< 0.001	0.023	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.002	< 0.001	0.015	< 0.001
Chrysene	0.001	mg/L	< 0.002	< 0.001	0.028	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.002	< 0.001	0.004	< 0.001
Fluoranthene	0.001	mg/L	0.002	< 0.001	0.052	< 0.001
Fluorene	0.001	mg/L	< 0.002	< 0.001	< 0.002	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.002	< 0.001	0.018	< 0.001
Naphthalene	0.001	mg/L	< 0.002	< 0.001	< 0.002	< 0.001
Phenanthrene	0.001	mg/L	< 0.002	< 0.001	0.020	< 0.001
Pyrene	0.001	mg/L	0.002	< 0.001	0.052	< 0.001
Total PAH*	0.002	mg/L	0.012	< 0.001	0.314	< 0.001
2-Fluorobiphenyl (surr.)	1	%	59	INT	INT	63
p-Terphenyl-d14 (surr.)	1	%	58	51	INT	62
Heavy Metals						
Chromium	0.05	mg/L	-	< 0.05	-	-
Lead	0.01	mg/L	-	< 0.01	-	< 0.01
Nickel	0.05	mg/L	-	< 0.05	-	-
USA Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	8.9	9.7	8.6	7.6
pH (off)	0.1	pH Units	10	11	8.7	7.4
pH (USA HCl addition)	0.1	pH Units	2.0	2.1	2.0	1.9

Client Sample ID			RCD-G05_0.2-0.5	RCD-G06_0.1-0.4	SRT_LD682_0.2-0.5
Sample Matrix			**US Leachate**	**US Leachate**	**US Leachate**
Eurofins | mgt Sample No.			**S17-Oc33380**	**S17-Oc33381**	**S17-Oc33382**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	< 0.001	< 0.002	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.002	-
Anthracene	0.001	mg/L	< 0.001	< 0.002	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.002	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.002	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.002	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.002	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.002	-
Chrysene	0.001	mg/L	< 0.001	< 0.002	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.002	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.002	-
Fluorene	0.001	mg/L	< 0.001	< 0.002	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.002	-
Naphthalene	0.001	mg/L	< 0.001	< 0.002	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.002	-
Pyrene	0.001	mg/L	< 0.001	< 0.002	-
Total PAH*	0.002	mg/L	< 0.001	< 0.002	-
2-Fluorobiphenyl (surr.)	1	%	59	68	-
p-Terphenyl-d14 (surr.)	1	%	69	63	-
Heavy Metals					
Chromium	0.05	mg/L	< 0.05	-	-
Lead	0.01	mg/L	< 0.01	< 0.01	0.05
Nickel	0.05	mg/L	-	< 0.05	-
USA Leaching Procedure					
Leachate Fluid[C01]		comment	1.0	1.0	1.0
pH (initial)	0.1	pH Units	7.5	9.0	8.1
pH (off)	0.1	pH Units	9.0	10	10
pH (USA HCl addition)	0.1	pH Units	1.9	1.9	1.9

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 31, 2017	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Heavy Metals	Sydney	Oct 31, 2017	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
USA Leaching Procedure	Sydney	Oct 31, 2017	14 Day
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			

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NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: ADDITIONAL - S2B PORTION 5
Project ID: 21 25491 53

Order No.:
Report #: 570031
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 27, 2017 4:55 PM
Due: Nov 3, 2017
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chromium	Lead	Nickel	Polycyclic Aromatic Hydrocarbons	USA Leaching Procedure
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	RCD-G01_0.2-0.4	Oct 04, 2017		US Leachate	S17-Oc33376					X	X
2	RCD-G02_0.2-0.3	Oct 04, 2017		US Leachate	S17-Oc33377		X	X	X	X	X
3	RCD-G02_1.1-1.2	Oct 04, 2017		US Leachate	S17-Oc33378					X	X
4	RCD-G03_0.2-0.4	Oct 04, 2017		US Leachate	S17-Oc33379			X		X	X
5	RCD-G05_0.2-0.5	Oct 04, 2017		US Leachate	S17-Oc33380		X	X		X	X
6	RCD-G06_0.1-	Oct 04, 2017		US Leachate	S17-Oc33381			X	X	X	X

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Project Name: ADDITIONAL - S2B PORTION 5
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Received: Oct 27, 2017 4:55 PM
Due: Nov 3, 2017
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chromium	Lead	Nickel	Polycyclic Aromatic Hydrocarbons	USA Leaching Procedure
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
	0.4										
7	SRT_LD682_0.2-0.5	Oct 04, 2017		US Leachate	S17-Oc33382			X			X
8	SRT_LD683_0.05-0.15	Oct 04, 2017		US Leachate	S17-Oc33383	X					
9	SRT_LD683_0.15-0.5	Oct 04, 2017		US Leachate	S17-Oc33384	X					
Test Counts						2	2	5	2	6	7

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Chromium			mg/L	< 0.05			0.05	Pass	
Lead			mg/L	< 0.01			0.01	Pass	
Nickel			mg/L	< 0.05			0.05	Pass	
LCS - % Recovery									
Heavy Metals									
Chromium			%	104			70-130	Pass	
Lead			%	105			70-130	Pass	
Nickel			%	101			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Chromium	M17-Oc32869	NCP	%	93			70-130	Pass	
Lead	M17-Oc32869	NCP	%	93			70-130	Pass	
Nickel	M17-Oc32869	NCP	%	89			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**	**Result 2**	**RPD**	**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Chromium	M17-Oc32868	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead	M17-Oc32868	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nickel	M17-Oc32868	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya Analytical Services Manager

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID : 170815GHDN**
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

Not all samples are in a jar and in a bag. Please freeze a small portion of the samples selected for pHf and pHfox if only jars are availble for future sPOCAS and Cr reducible sulphur.

A separate COC will be submitted for analysis of ether parameters.

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g/7kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)			pH F and pH FOX	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	RCD-G01_0.2-0.4	4/10/2017	soil																					
2	RCD-G01_0.5-0.95	4/10/2017	soil																					
3	RCD-G01_1.3	4/10/2017	soil								x													
4	RCD-G01_1.5-1.95	4/10/2017	soil																					
5	RCD-G01_2.3	4/10/2017	soil								x													
6	RCD-G01_3.0-3.45	4/10/2017	soil								x													
7	RCD-G01_4.5-4.95	4/10/2017	soil								x													
8	DUP1	4/10/2017	soil																					
9	RCG-G04_0.8	5/10/2017	soil																					
10	RCG-G04_1.0-1.45	5/10/2017	soil																					
11	RCD-G04_1.9	5/10/2017	soil								x													
12	RCD-G04_2.5-2.95	5/10/2017	soil								x													
13	RCD-G04_3.5	5/10/2017	soil								x													
14	RCD-G04_4.0-4.45	5/10/2017	soil								x													
15	DUP2	5/10/2017	soil																					
16																								

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1

Sample comments:

Laboratory Staff	Turn around time	Method Of Shipment	
Relinquished By: Henry Luo	**Received By:** Vinod Jacob	1 DAY ☑ 2 DAY ☐ 3 DAY ☐	☑ Courier
Date & Time : 5/10/2017 15:00	**Date & Time :** 5/10/17 17:29	5 DAY ☐ 10 DAY ☐ Other:	☐ Hand Delivered
Signature:	**Signature:**		☐ Postal
			Courier Consignment # :

Temperature on arrival: 2.8°C

Report number: 566747

Enviro Sample NSW

From: Robert Johnston
Sent: Thursday, 5 October 2017 3:04 PM
To: Enviro Sample NSW
Subject: FW: COC for ASS field test for GHD project 212549153 (Portion 5)
Attachments: 2125491_Portion 5_Eurofins_Chain Of Custody_No1_ASS field test.xls

Follow Up Flag: Follow up
Flag Status: Flagged

FYI

Please note the highlighted request.

Thanks,

Robert Johnston
Analytical Services Manager
Phone: 08 9251 9605
Email: RobertJohnston@eurofins.com

From: Henry Luo [mailto:Henry.Luo@ghd.com]
Sent: Thursday, 5 October 2017 12:00 PM
To: Robert Johnston
Cc: Charl Du Preez; Nibha Vaidya; Natalie Krasselt; Andrew Black; Keith Holden; Darshana Perera; Paul McDougall
Subject: COC for ASS field test for GHD project 212549153 (Portion 5)

Hi Robert

Please find the attached COC, for samples collected from the site yesterday and the samples will be collected today. The required ASS field test are for quick turnaround.

For the selected samples, if no bag sample is collected, can you please only freeze a small portion of the jar samples, given other analysis will be authorised via a separate COC.

Please let me know if you have any questions.

Kind regards

Henry

Henry Luo
Senior Environmental Engineer - Contamination Assessment & Remediation

GHD
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Water | Energy & Resources | Environment | Property & Buildings | Transportation

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Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **566347-S**
Project name S2B PORTION 5
Project ID 21 25491 53
Received Date Oct 05, 2017

Client Sample ID			**RCD-G04_1.9**	**RCD-G04_2.5-2.95**	**RCD-G04_3.5**	**RCD-G04_4.0-4.45**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc05329**	**S17-Oc05330**	**S17-Oc05331**	**S17-Oc05332**
Date Sampled			**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**	**Oct 04, 2017**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.1	5.8	6.0	5.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.5	4.2	4.3	3.2
Reaction Ratings*[S05]		comment	4.0	2.0	3.0	2.0

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Acid Sulfate Soils Field pH Test	Sydney	Oct 06, 2017	7 Days

- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests

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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 5
Project ID: 21 25491 53

Order No.:
Report #: 566347
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 5, 2017 5:29 PM
Due: Oct 6, 2017
Priority: 1 Day
Contact Name: Paul McDougall

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	RCG-G04_0.8	Oct 04, 2017		Soil	S17-Oc05327	X	
2	RCG-G04_1.0-1.45	Oct 04, 2017		Soil	S17-Oc05328	X	
3	RCD-G04_1.9	Oct 04, 2017		Soil	S17-Oc05329		X
4	RCD-G04_2.5-2.95	Oct 04, 2017		Soil	S17-Oc05330		X
5	RCD-G04_3.5	Oct 04, 2017		Soil	S17-Oc05331		X
6	RCD-G04_4.0-4.45	Oct 04, 2017		Soil	S17-Oc05332		X
7	DUP2	Oct 04, 2017		Soil	S17-Oc05333	X	

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web : www.eurofins.com.au

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NATA # 1261 Site # 20794

Perth
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Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd NSW	**Order No.:**		**Received:**	Oct 5, 2017 5:29 PM
Address:	Level 15, 133 Castlereagh Street Sydney NSW 2000	**Report #:**	566347	**Due:**	Oct 6, 2017
		Phone:	02 9239 7100	**Priority:**	1 Day
		Fax:	02 9239 7199	**Contact Name:**	Paul McDougall
Project Name:	S2B PORTION 5				
Project ID:	21 25491 53				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail	HOLD	Acid Sulfate Soils Field pH Test
Melbourne Laboratory - NATA Site # 1254 & 14271		
Sydney Laboratory - NATA Site # 18217	X	X
Brisbane Laboratory - NATA Site # 20794		
Perth Laboratory - NATA Site # 23736		
Test Counts	3	4

Internal Quality Control Review and Glossary

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5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

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Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised By

Nibha Vaidya Analytical Services Manager

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Phone: +613 8564 5000 Fax: +613 8564 5090
Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

Not all samples are in a jar and in a bag. Please freeze a small portion of the samples selected for pHf and pHfox if only jars are availble for future sPOCAS and Cr reducible sulphur

A separate COC will be submitted for analysis of other parameters.

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)			pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	RCD-G05_0.2-0.5	12/10/2017	soil																					
2	RCD-G05_0.5-0.8	12/10/2017	soil								x													
3	RCD-G05_1.0-1.3	12/10/2017	soil																					
4	RCD-G05_1.5-1.95	12/10/2017	soil								x													
5	RCD-G05_3.0-3.45	12/10/2017	soil								x													
6	RCD-G05_4.5-4.95	12/10/2017	soil								x													
7	RCD-G05_6.0-6.45	12/10/2017	soil																					
8	RCD-G05_7.5-7.95	12/10/2017	soil																					
9	RCD-G05_9.0-9.45	12/10/2017	soil																					
10	RCD-G05_10.45-10.5	12/10/2017	soil																					
11	RCD-G05_12.0-12.10	12/10/2017	soil																					
12																								
13																								
14																								
15																								
16																								

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1

Sample comments:

Relinquished By: Henry Luo
Date & Time : 12/10/2017 17:00

Laboratory Staff
Received By: Moses
Date & Time : 12/10/17 17:29
Signature:

Turn around time
1 DAY ☑ 2 DAY ☐ 3 DAY ☐
5 DAY ☐ 10 DAY ☐ Other:

Method Of Shipment
☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival: 20.2
Report number:

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Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Paul McDougall**

Report **567352-S**
Project name S2B PORTION 5
Project ID 21 25491 53
Received Date Oct 12, 2017

Client Sample ID			**RCD-G05_0.5-0.8**	**RCD-G05_1.5-1.95**	**RCD-G05_3.0-3.45**	**RCD-G05_4.5-4.95**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc13472**	**S17-Oc13474**	**S17-Oc13475**	**S17-Oc13476**
Date Sampled			**Oct 12, 2017**	**Oct 12, 2017**	**Oct 12, 2017**	**Oct 12, 2017**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	7.1	6.2	6.3	6.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.0	4.1	4.7	5.6
Reaction Ratings*[S05]		comment	4.0	4.0	2.0	2.0

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Acid Sulfate Soils Field pH Test	Sydney	Oct 13, 2017	7 Days

- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests

eurofins | mgt

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web : www.eurofins.com.au

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NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 5
Project ID: 21 25491 53

Order No.:
Report #: 567352
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 12, 2017 5:29 PM
Due: Oct 13, 2017
Priority: 1 Day
Contact Name: Paul McDougall

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	RCD-G05_0.2-0.5	Oct 12, 2017		Soil	S17-Oc13471	X		
2	RCD-G05_0.5-0.8	Oct 12, 2017		Soil	S17-Oc13472		X	X
3	RCD-G05_1.0-1.3	Oct 12, 2017		Soil	S17-Oc13473	X		
4	RCD-G05_1.5-1.95	Oct 12, 2017		Soil	S17-Oc13474		X	X
5	RCD-G05_3.0-3.45	Oct 12, 2017		Soil	S17-Oc13475		X	X
6	RCD-G05_4.5-	Oct 12, 2017		Soil	S17-Oc13476		X	X

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd NSW	**Order No.:**		**Received:**	Oct 12, 2017 5:29 PM
Address:	Level 15, 133 Castlereagh Street Sydney NSW 2000	**Report #:**	567352	**Due:**	Oct 13, 2017
		Phone:	02 9239 7100	**Priority:**	1 Day
		Fax:	02 9239 7199	**Contact Name:**	Paul McDougall
Project Name:	S2B PORTION 5				
Project ID:	21 25491 53				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
	4.95							
7	RCD-G05_6.0-6.45	Oct 12, 2017		Soil	S17-Oc13477	X		
8	RCD-G05_7.5-7.95	Oct 12, 2017		Soil	S17-Oc13478	X		
Test Counts						4	4	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised By

Nibha Vaidya Analytical Services Manager

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 5**	**Data output format:**

Special Directions & Comments :

~~For all samples are in a jar and in a bag. Please freeze a small~~ portion of the samples selected for pHf and pHfox if only jars are availble for future sPOCAS and Cr reducible sulphur.

A separate COC will be submitted for analysis of other parameters.

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)			pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	RCD-G06_0.1-0.4	16/10/2017	soil																					
2	RCD-G06_0.5-0.95	16/10/2017	soil																					
3	RCD-G06_1.1-1.3	16/10/2017	soil																					
4	RCD-G06_1.5-1.95	16/10/2017	soil								x													
5	RCD-G06_2.4-2.6	16/10/2017	soil								x													
6	RCD-G06_2.4-2.6	16/10/2017	soil								x													
7	RCD-G06_3.0-3.45	16/10/2017	soil								x													
8	RCD-G06_3.9-4.1	16/10/2017	soil								x													
9	RCD-G06_4.5-4.95	16/10/2017	soil								x													
10	RCD-G06_6.0-6.45	16/10/2017	soil																					
11	RCD-G06_7.5-7.95	16/10/2017	soil																					
12																								
13																								
14																								
15																								
16																								

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1

Sample comments:

Relinquished By: Henry Luo
Date & Time : 16/10/2017 16:00
Signature:

Laboratory Staff
Received By: Moses
Date & Time: 16/10/17 5:15Pm
Signature:

Turn around time
1 DAY ☑ 2 DAY ☐ 3 DAY ☐
5 DAY ☐ 10 DAY ☐ Other:

Method Of Shipment
☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival: 22°C

Report number: 567803

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention: **Paul McDougall**

Report **567803-S**
Project name S2B PORTION 5
Project ID 21 25491 53
Received Date Oct 16, 2017

Client Sample ID			**RCD-G06_1.5-1.95**	**RCD-G06_2.4-2.6**	**RCD-G06_3.0-3.45**	**RCD-G06_3.9-4.1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc17469**	**S17-Oc17470**	**S17-Oc17471**	**S17-Oc17472**
Date Sampled			**Oct 16, 2017**	**Oct 16, 2017**	**Oct 16, 2017**	**Oct 16, 2017**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.5	7.5	7.5	7.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.0	4.7	6.1	6.2
Reaction Ratings*[S05]		comment	2.0	4.0	3.0	3.0

Client Sample ID			**RCD-G06_4.5-4.95**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**S17-Oc17473**
Date Sampled			**Oct 16, 2017**
Test/Reference	LOR	Unit	
Acid Sulfate Soils Field pH Test			
pH-F (Field pH test)*	0.1	pH Units	7.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	6.4
Reaction Ratings*[S05]		comment	3.0

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Acid Sulfate Soils Field pH Test	Sydney	Oct 17, 2017	7 Days

- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests

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NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 5
Project ID: 21 25491 53

Order No.:
Report #: 567803
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 16, 2017 5:15 PM
Due: Oct 17, 2017
Priority: 1 Day
Contact Name: Paul McDougall

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	RCD-G06_0.1-0.4	Oct 16, 2017		Soil	S17-Oc17466	X		
2	RCD-G06_0.5-0.95	Oct 16, 2017		Soil	S17-Oc17467	X		
3	RCD-G06_1.1-1.3	Oct 16, 2017		Soil	S17-Oc17468	X		
4	RCD-G06_1.5-1.95	Oct 16, 2017		Soil	S17-Oc17469		X	X
5	RCD-G06_2.4-2.6	Oct 16, 2017		Soil	S17-Oc17470		X	X
6	RCD-G06_3.0-	Oct 16, 2017		Soil	S17-Oc17471		X	X

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NATA # 1261 Site # 20794

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2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 5
Project ID: 21 25491 53

Order No.:
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Received: Oct 16, 2017 5:15 PM
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Contact Name: Paul McDougall

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
	3.45							
7	RCD-G06_3.9-4.1	Oct 16, 2017		Soil	S17-Oc17472		X	X
8	RCD-G06_4.5-4.95	Oct 16, 2017		Soil	S17-Oc17473		X	X
9	RCD-G06_6.0-6.45	Oct 16, 2017		Soil	S17-Oc17474	X		
10	RCD-G06_7.5-7.95	Oct 16, 2017		Soil	S17-Oc17475	X		
Test Counts						5	5	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised By

Nibha Vaidya Analytical Services Manager

Glenn Jackson
National Operations Manager

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Keith Holden, Darshana Perera**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa, Eric Tang**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul McDougall, Hannah Dawson, Henry Luo**	**PROJECT Name : S2B Portion 4**	**Data output format:**

Special Directions & Comments :

For all samples one in a jar and in a bag. Please freeze a small portion of the samples selected for pHf and pHfox if only jars are availble for future sPOCAS and Cr reducible sulphur.

A separate COC will be submitted for analysis of other parameters.

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)				pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	SRT_LD681_0.2-0.5	13/10/2017	soil																						
2	SRT_LD681_0.5-0.95	13/10/2017	soil																						
3	SRT_LD681_1.5-1.6	13/10/2017	soil																						
4	SRT_LD681_2.0-2.45	13/10/2017	soil									x													
5	SRT_LD681_2.9-3.0	13/10/2017	soil									x													
6	SRT_LD681_3.5-3.95	13/10/2017	soil									x													
7	SRT_LD681_0.3-0.8	13/10/2017	soil																						
8	SRT_LD681_1.3-1.6	13/10/2017	soil																						
9	SRT_LD682_0.05-0.2	13/10/2017	soil																						
10	SRT_LD682_0.2-0.5	13/10/2017	soil																						
11	SRT_LD682_0.5-0.95	13/10/2017	soil																						
12	SRT_LD682_2.0-2.45	13/10/2017	soil																						
13	SRT_LD682_1.4-1.6	13/10/2017	soil																						
14	SRT_LD682_3.5-3.95	13/10/2017	soil																						
15	SRT_LD682_0.2-0.6	13/10/2017	soil																						
16	SRT_LD682_1.2-1.7	13/10/2017	soil																						

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag	Sample comments:
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	
						1	1	

Laboratory Staff

Relinquished By: Henry Luo
Date & Time : 16/10/2017 17:55
Signature:

Received By: Ursula Leong
Date & Time : 5:57pm 16/10
Signature:

Turn around time

1 DAY ☑ 2 DAY ☐ 3 DAY ☐
5 DAY ☐ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival: 24.5°C

Report number: 567820

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name :** Keith Holden, Darshana Perera	**Purchase Order :** 2125491	**COC Number :**
Office Address :	**Project Manager :** Kamal Kamalarasa, Eric Tang	**PROJECT Number :** 21 25491 53	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** Paul McDougall, Hannah Dawson, Henry Luo	**PROJECT Name :** S2B Portion 4	**Data output format:**

Special Directions & Comments :

~~For all samples are in a jar and in a bag. Please freeze a small~~ portion of the samples selected for pHf and pHfox if only jars are availble for future sPOCAS and Cr reducible sulphur.

A separate COC will be submitted for analysis of other parameters.

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7 (TRH/PAH/BTEXN/8 metals)	Asbestos ID (presence / absence) - AS4964-2004	Asbestos ID (AS4964-2004 - 0.1g / kg)	Suite B7a (TRH/PAH/BTEXN/8 metals/phenols)	Suite B15 (OCP/OPP/PCB)				pH_F and pH_{FOX}	SPOCAS and Cr reducible		TCLP		Metals/ TRH / PAH	BTEX/ TRH C6-C9	BTEX	8 metals						
1	SRT_LD683_0.05-0.15	13/10/2017	soil																						
2	SRT_LD683_0.15-0.5	13/10/2017	soil																						
3	SRT_LD683_0.8-0.95	13/10/2017	soil																						
4	SRT_LD683_1.5-1.95	13/10/2017	soil									x													
5	SRT_LD683_3.0-3.5	13/10/2017	soil									x													
6	SRT_LD681_3.5-4.0	13/10/2017	soil									x													
7	SRT_LD681_0.5-0.8	13/10/2017	soil																						
8	SRT_LD681_1.5-2.0	13/10/2017	soil																						
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1

Sample comments:

Laboratory Staff

Relinquished By: Henry Luo	**Received By:**
Date & Time : 16/10/2017 17:55	**Date & Time :**
Signature:	**Signature:**

Turn around time

1 DAY ☑ 2 DAY ☐ 3 DAY ☐
5 DAY ☐ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number:
587820

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention: **Paul McDougall**

Report **567820-S**
Project name S2B PORTION 4
Project ID 21 25491 53
Received Date Oct 16, 2017

Client Sample ID			**SRT_LD681_2.0-2.45**	**SRT_LD681_2.9-3.0**	**SRT_LD681_3.5-3.95**	**SRT_LD683_1.5-1.95**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc17642**	**S17-Oc17643**	**S17-Oc17644**	**S17-Oc17654**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.0	5.3	5.2	5.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.7	4.3	4.3	4.0
Reaction Ratings*[S05]		comment	2.0	2.0	2.0	4.0

Client Sample ID			**SRT_LD683_3.0-3.5**	**SRT_LD683_3.5-4.0**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc17655**	**S17-Oc17656**
Date Sampled			**Oct 13, 2017**	**Oct 13, 2017**
Test/Reference	LOR	Unit		
Acid Sulfate Soils Field pH Test				
pH-F (Field pH test)*	0.1	pH Units	5.9	5.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.1	4.1
Reaction Ratings*[S05]		comment	3.0	2.0

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Acid Sulfate Soils Field pH Test	Sydney	Oct 17, 2017	7 Days

- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests

ABN– 50 005 085 521
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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd NSW	**Order No.:**		**Received:**	Oct 16, 2017 5:29 PM
Address:	Level 15, 133 Castlereagh Street Sydney NSW 2000	**Report #:**	567820	**Due:**	Oct 17, 2017
		Phone:	02 9239 7100	**Priority:**	1 Day
		Fax:	02 9239 7199	**Contact Name:**	Paul McDougall
Project Name:	S2B PORTION 4				
Project ID:	21 25491 53				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SRT_LD681_0.2-0.5	Oct 13, 2017		Soil	S17-Oc17639	X		
2	SRT_LD681_0.5-0.95	Oct 13, 2017		Soil	S17-Oc17640	X		
3	SRT_LD681_1.5-1.6	Oct 13, 2017		Soil	S17-Oc17641	X		
4	SRT_LD681_2.0-2.45	Oct 13, 2017		Soil	S17-Oc17642		X	X
5	SRT_LD681_2.9-3.0	Oct 13, 2017		Soil	S17-Oc17643		X	X
6	SRT_LD681_3	Oct 13, 2017		Soil	S17-Oc17644		X	X

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Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 4
Project ID: 21 25491 53

Order No.:
Report #: 567820
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 16, 2017 5:29 PM
Due: Oct 17, 2017
Priority: 1 Day
Contact Name: Paul McDougall

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
	.5-3.95							
7	SRT_LD682_0 .05-0.2	Oct 13, 2017		Soil	S17-Oc17645	X		
8	SRT_LD682_0 .2-0.5	Oct 13, 2017		Soil	S17-Oc17646	X		
9	SRT_LD682_0 .5-0.95	Oct 13, 2017		Soil	S17-Oc17647	X		
10	SRT_LD682_2 .0-2.45	Oct 13, 2017		Soil	S17-Oc17648	X		
11	SRT_LD682_1 .4-1.6	Oct 13, 2017		Soil	S17-Oc17649	X		
12	SRT_LD682_3 .5-3.95	Oct 13, 2017		Soil	S17-Oc17650	X		
13	SRT_LD683_0	Oct 13, 2017		Soil	S17-Oc17651	X		

eurofins | mgt

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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: S2B PORTION 4
Project ID: 21 25491 53

Order No.:
Report #: 567820
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 16, 2017 5:29 PM
Due: Oct 17, 2017
Priority: 1 Day
Contact Name: Paul McDougall

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Acid Sulfate Soils Field pH Test	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
	.05-0.15							
14	SRT_LD683_0.15-0.5	Oct 13, 2017		Soil	S17-Oc17652	X		
15	SRT_LD683_0.8-0.95	Oct 13, 2017		Soil	S17-Oc17653	X		
16	SRT_LD683_1.5-1.95	Oct 13, 2017		Soil	S17-Oc17654		X	X
17	SRT_LD683_3.0-3.5	Oct 13, 2017		Soil	S17-Oc17655		X	X
18	SRT_LD683_3.5-4.0	Oct 13, 2017		Soil	S17-Oc17656		X	X
Test Counts						12	6	6

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised By

Nibha Vaidya Analytical Services Manager

Glenn Jackson
National Operations Manager

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Enviro Sample NSW

From: Nibha Vaidya
Sent: Wednesday, 18 October 2017 10:07 PM
To: Enviro Sample NSW; COC NSW
Subject: 5 DAY TAT - FW: COC for sPOCAS and Chromium reducible sulphur analysis for GHD project 212549153 (portion 4 and portion 5)

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

Additional analysis please – 5 day TAT
Please log under a single report.

Issue SRA as soon as it is logged.

Kind Regards,

Nibha Vaidya
Phone : +61 2 9900 8415
Mobile : +61 499 900 805
Email : NibhaVaidya@eurofins.com

From: Henry Luo [mailto:Henry.Luo@ghd.com]
Sent: Wednesday, 18 October 2017 4:39 PM
To: Nibha Vaidya
Cc: Keith Holden; Paul McDougall
Subject: COC for sPOCAS and Chromium reducible sulphur analysis for GHD project 212549153 (portion 4 and portion 5)

Hi Nibha

Can you please organise the required analysis for a five days turnaround time? Can you please manage to submit the data within one report?

Sample field ID	Eurofins report number	Eurofins sample No.	Required analysis	TAT
RCD-G02_2.3-2.5	566585	S17-Oc07316	sPOCAS and chromium reducible sulphur	5 days
RCD-G03_3.0-3.45	566585	S17-Oc07325	sPOCAS and chromium reducible sulphur	5 days
RCD-G04_1.9	566347	S17-Oc05329	sPOCAS and chromium reducible sulphur	5 days
RCD-G05_1.5-1.95	567352	S17-Oc13474	sPOCAS and chromium reducible sulphur	5 days
RCD-G06_2.4-2.6	567803	S17-Oc17470	sPOCAS and chromium	5 days

			reducible sulphur	
RCD-G07_3.0-3.45	566956	S17-Oc10401	sPOCAS and chromium reducible sulphur	5 days
SRT_LD681_2.9-3.0	567820	S17-Oc17643	sPOCAS and chromium reducible sulphur	5 days
SRT_LD683_3.0-3.5	567820	S17-Oc17655	sPOCAS and chromium reducible sulphur	5 days

Kind regards

Henry

Henry Luo
Senior Environmental Engineer - Contamination Assessment & Remediation

GHD
T: + 61 2 9239 7044 | F: + 61 2 9239 7199 | V: 217044 | M: 0414 090 002 | E: henry.luo@ghd.com
Level 15 133 Castlereagh St Sydney NSW 2000 Australia | http://www.ghd.com/
Water | Energy & Resources | Environment | Property & Buildings | Transportation

eurofins | mgt

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **568293-S**
Project name ADDITIONAL -S2B PORTION 5
Project ID 212549153
Received Date Oct 18, 2017

Client Sample ID			**RCD-G02_2.3-2.5**	**RCD-G03_3.0-3.45**	**RCD-G04_1.9**	**RCD-G05_1.5-1.95**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc21002**	**S17-Oc21003**	**S17-Oc21004**	**S17-Oc21005**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
SPOCAS Suite						
pH-KCL	0.1	pH Units	6.0	4.7	4.6	4.9
pH-OX	0.1	pH Units	6.1	4.9	4.6	4.7
Acid trail - Titratable Actual Acidity	2	mol H+/t	5.3	52	27	25
Acid trail - Titratable Peroxide Acidity	2	mol H+/t	< 2	55	40	44
Acid trail - Titratable Sulfidic Acidity	2	mol H+/t	< 2	3.0	13	18
sulfidic - TAA equiv. S% pyrite	0.02	% pyrite S	< 0.02	0.08	0.04	0.04
sulfidic - TPA equiv. S% pyrite	0.02	% pyrite S	< 0.02	0.09	0.06	0.07
sulfidic - TSA equiv. S% pyrite	0.02	% pyrite S	< 0.02	< 0.02	0.02	0.03
Sulfur - KCl Extractable	0.02	% S	< 0.02	0.07	0.02	< 0.02
Sulfur - Peroxide	0.02	% S	0.03	0.09	0.06	0.03
Sulfur - Peroxide Oxidisable Sulfur	0.02	% S	0.03	0.02	0.04	0.03
acidity - Peroxide Oxidisable Sulfur	10	mol H+/t	21	13	22	16
HCl Extractable Sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur - acidity units	10	mol H+/t	n/a	n/a	n/a	n/a
Net Acid soluble sulfur - equivalent S% pyrite[S02]	0.02	% S	n/a	n/a	n/a	n/a
Calcium - KCl Extractable	0.02	% Ca	0.04	< 0.02	0.08	0.07
Calcium - Peroxide	0.02	% Ca	0.04	< 0.02	0.09	0.07
Acid Reacted Calcium	0.02	% Ca	< 0.02	< 0.02	< 0.02	< 0.02
acidity - Acid Reacted Calcium	10	mol H+/t	< 10	< 10	< 10	< 10
sulfidic - Acid Reacted Ca equiv. S% pyrite	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
Magnesium - KCl Extractable	0.02	% Mg	0.11	0.05	0.10	0.07
Magnesium - Peroxide	0.02	% Mg	0.12	0.05	0.11	0.07
Acid Reacted Magnesium	0.02	% Mg	< 0.02	< 0.02	< 0.02	< 0.02
acidity - Acid Reacted Magnesium	10	mol H+/t	< 10	< 10	< 10	< 10
sulfidic - Acid Reacted Mg equiv. S% pyrite	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
Acid Neutralising Capacity	0.02	%CaCO3	n/a	n/a	n/a	n/a
Acid Neutralising Capacity - Acidity units	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity equivalent S% pyrite	0.02	% S	n/a	n/a	n/a	n/a
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (sulfur units) - SPOCAS	0.02	% S	0.04	0.10	0.08	0.07
Net Acidity (acidity units) - SPOCAS	10	mol H+/t	26	65	49	42
Liming rate - SPOCAS	1	kg CaCO3/t	2.0	5.0	4.0	3.0

Client Sample ID			RCD-G02_2.3-2.5	RCD-G03_3.0-3.45	RCD-G04_1.9	RCD-G05_1.5-1.95
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc21002**	**S17-Oc21003**	**S17-Oc21004**	**S17-Oc21005**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
Chromium Suite						
pH-KCL	0.1	pH Units	6.0	4.7	4.6	4.9
Acid trail - Titratable Actual Acidity	2	mol H+/t	5.3	52	27	25
sulfidic - TAA equiv. S% pyrite	0.02	% pyrite S	< 0.02	0.08	0.04	0.04
Chromium Reducible Sulfur[S04]	0.005	% S	< 0.005	< 0.005	0.013	0.016
Chromium Reducible Sulfur -acidity units	3	mol H+/t	< 3	< 3	8.0	10
Sulfur - KCl Extractable	0.02	% S	< 0.02	0.07	0.02	< 0.02
HCl Extractable Sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur - acidity units	10	mol H+/t	n/a	n/a	n/a	n/a
Net Acid soluble sulfur - equivalent S% pyrite[S02]	0.02	% S	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)	0.01	%CaCO3	n/a	n/a	n/a	n/a
Acid Neutralising Capacity - acidity (ANCbt)	2	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity - equivalent S% pyrite (s-ANCbt)[S03]	0.02	% S	n/a	n/a	n/a	n/a
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Sulfur Units)	0.02	% S	< 0.02	0.08	0.06	0.06
Net Acidity (Acidity Units)	10	mol H+/t	< 10	52	35	35
Liming Rate[S01]	1	kg CaCO3/t	< 1	3.9	2.6	2.7
Extraneous Material						
<2mm Fraction	0.005	g	180	14	190	84
>2mm Fraction	0.005	g	3.0	< 0.005	3.1	7.1
Analysed Material	0.1	%	98	100	98	92
Extraneous Material	0.1	%	1.6	< 0.1	1.6	7.8
% Moisture	1	%	20	12	19	16

Client Sample ID			RCD-G07_3.0-3.45	RCD-G06_2.4-2.6	SRT_LD681_2.9-3.0	SRT_LD683_3.0-3.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc21007**	**S17-Oc21546**	**S17-Oc21547**	**S17-Oc21548**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
SPOCAS Suite						
pH-KCL	0.1	pH Units	4.8	6.2	4.6	4.6
pH-OX	0.1	pH Units	5.6	6.0	5.5	5.2
Acid trail - Titratable Actual Acidity	2	mol H+/t	12	4.1	20	28
Acid trail - Titratable Peroxide Acidity	2	mol H+/t	8.0	< 2	18	35
Acid trail - Titratable Sulfidic Acidity	2	mol H+/t	< 2	< 2	< 2	8.0
sulfidic - TAA equiv. S% pyrite	0.02	% pyrite S	0.02	< 0.02	0.03	0.04
sulfidic - TPA equiv. S% pyrite	0.02	% pyrite S	< 0.02	< 0.02	0.03	0.06
sulfidic - TSA equiv. S% pyrite	0.02	% pyrite S	< 0.02	< 0.02	< 0.02	< 0.02
Sulfur - KCl Extractable	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
Sulfur - Peroxide	0.02	% S	< 0.02	0.02	< 0.02	0.03
Sulfur - Peroxide Oxidisable Sulfur	0.02	% S	< 0.02	0.02	< 0.02	0.03
acidity - Peroxide Oxidisable Sulfur	10	mol H+/t	< 10	13	< 10	21
HCl Extractable Sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur - acidity units	10	mol H+/t	n/a	n/a	n/a	n/a

Client Sample ID			RCD-G07_3.0-3.45	RCD-G06_2.4-2.6	SRT_LD681_2.9-3.0	SRT_LD683_3.0-3.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-Oc21007**	**S17-Oc21546**	**S17-Oc21547**	**S17-Oc21548**
Date Sampled			**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**	**Oct 06, 2017**
Test/Reference	LOR	Unit				
SPOCAS Suite						
Net Acid soluble sulfur - equivalent S% pyrite[S02]	0.02	% S	n/a	n/a	n/a	n/a
Calcium - KCl Extractable	0.02	% Ca	< 0.02	0.19	< 0.02	< 0.02
Calcium - Peroxide	0.02	% Ca	< 0.02	0.21	< 0.02	< 0.02
Acid Reacted Calcium	0.02	% Ca	< 0.02	< 0.02	< 0.02	< 0.02
acidity - Acid Reacted Calcium	10	mol H+/t	< 10	< 10	< 10	< 10
sulfidic - Acid Reacted Ca equiv. S% pyrite	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
Magnesium - KCl Extractable	0.02	% Mg	0.05	0.08	0.07	0.05
Magnesium - Peroxide	0.02	% Mg	0.05	0.08	0.08	0.05
Acid Reacted Magnesium	0.02	% Mg	< 0.02	< 0.02	< 0.02	< 0.02
acidity - Acid Reacted Magnesium	10	mol H+/t	< 10	< 10	< 10	< 10
sulfidic - Acid Reacted Mg equiv. S% pyrite	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
Acid Neutralising Capacity	0.02	%CaCO3	n/a	n/a	n/a	n/a
Acid Neutralising Capacity - Acidity units	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity equivalent S% pyrite	0.02	% S	n/a	n/a	n/a	n/a
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (sulfur units) - SPOCAS	0.02	% S	0.02	0.03	0.03	0.08
Net Acidity (acidity units) - SPOCAS	10	mol H+/t	12	17	20	49
Liming rate - SPOCAS	1	kg CaCO3/t	1.0	1.0	2.0	4.0
Chromium Suite						
pH-KCL	0.1	pH Units	4.8	6.2	4.6	4.6
Acid trail - Titratable Actual Acidity	2	mol H+/t	12	4.1	20	28
sulfidic - TAA equiv. S% pyrite	0.02	% pyrite S	0.02	< 0.02	0.03	0.04
Chromium Reducible Sulfur[S04]	0.005	% S	< 0.005	0.006	< 0.005	0.010
Chromium Reducible Sulfur -acidity units	3	mol H+/t	< 3	4.0	< 3	6.0
Sulfur - KCl Extractable	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
HCl Extractable Sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur	0.02	% S	n/a	n/a	n/a	n/a
Net Acid soluble sulfur - acidity units	10	mol H+/t	n/a	n/a	n/a	n/a
Net Acid soluble sulfur - equivalent S% pyrite[S02]	0.02	% S	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)	0.01	%CaCO3	n/a	n/a	n/a	n/a
Acid Neutralising Capacity - acidity (ANCbt)	2	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity - equivalent S% pyrite (s-ANCbt)[S03]	0.02	% S	n/a	n/a	n/a	n/a
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Sulfur Units)	0.02	% S	0.02	< 0.02	0.03	0.06
Net Acidity (Acidity Units)	10	mol H+/t	12	< 10	20	34
Liming Rate[S01]	1	kg CaCO3/t	< 1	< 1	1.5	2.6
Extraneous Material						
<2mm Fraction	0.005	g	140	130	110	93
>2mm Fraction	0.005	g	< 0.005	12	< 0.005	< 0.005
Analysed Material	0.1	%	100	92	100	100
Extraneous Material	0.1	%	< 0.1	8.4	< 0.1	< 0.1
% Moisture	1	%	16	20	16	15

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
SPOCAS Suite			
SPOCAS Suite	Brisbane	Oct 24, 2017	6 Week
- Method: LTM-GEN-7050			
Chromium Suite			
Chromium Suite	Brisbane	Oct 24, 2017	6 Week
- Method: LTM-GEN-7070			
Extraneous Material	Brisbane	Oct 24, 2017	6 Week
- Method: LTM-GEN-7050/7070			
% Moisture	Brisbane	Oct 19, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd NSW	**Order No.:**		**Received:**	Oct 18, 2017 10:07 PM
Address:	Level 15, 133 Castlereagh Street Sydney NSW 2000	**Report #:**	568293	**Due:**	Oct 26, 2017
		Phone:	02 9239 7100	**Priority:**	5 Day
		Fax:	02 9239 7199	**Contact Name:**	Henry Luo
Project Name:	ADDITIONAL -S2B PORTION 5				
Project ID:	212549153				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						SPOCAS Suite	Chromium Suite	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	RCD-G02_2.3-2.5	Oct 06, 2017		Soil	S17-Oc21002	X	X	X
2	RCD-G03_3.0-3.45	Oct 06, 2017		Soil	S17-Oc21003	X	X	X
3	RCD-G04_1.9	Oct 06, 2017		Soil	S17-Oc21004	X	X	X
4	RCD-G05_1.5-1.95	Oct 06, 2017		Soil	S17-Oc21005	X	X	X
5	RCD-G07_3.0-3.45	Oct 06, 2017		Soil	S17-Oc21007	X	X	X
6	RCD-G06_2.4-2.6	Oct 06, 2017		Soil	S17-Oc21546	X	X	X

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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Site # 1254 & 14271

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Lane Cove West NSW 2066
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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
7	SRT_LD681_2.9-3.0	Oct 06, 2017		Soil	S17-Oc21547	X	X	X
8	SRT_LD683_3.0-3.5	Oct 06, 2017		Soil	S17-Oc21548	X	X	X
Test Counts						8	8	8

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Chromium Suite							
Chromium Reducible Sulfur	%	103			70-130	Pass	
Acid Neutralising Capacity (ANCbt)	%	105			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
SPOCAS Suite				Result 1	Result 2	RPD			
pH-KCL	S17-Oc21002	CP	pH Units	6.0	6.1	1.1	30%	Pass	
pH-OX	S17-Oc21002	CP	pH Units	6.1	6.1	<1	30%	Pass	
Acid trail - Titratable Actual Acidity	S17-Oc21002	CP	mol H+/t	5.3	4.6	14	30%	Pass	
Acid trail - Titratable Peroxide Acidity	S17-Oc21002	CP	mol H+/t	< 2	< 2	<1	30%	Pass	
Acid trail - Titratable Sulfidic Acidity	S17-Oc21002	CP	mol H+/t	< 2	< 2	<1	30%	Pass	
sulfidic - TAA equiv. S% pyrite	S17-Oc21002	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass	
sulfidic - TPA equiv. S% pyrite	S17-Oc21002	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass	
sulfidic - TSA equiv. S% pyrite	S17-Oc21002	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass	
Sulfur - Peroxide	S17-Oc21002	CP	% S	0.03	0.03	2.0	30%	Pass	
Sulfur - Peroxide Oxidisable Sulfur	S17-Oc21002	CP	% S	0.03	0.03	2.0	30%	Pass	
acidity - Peroxide Oxidisable Sulfur	S17-Oc21002	CP	mol H+/t	21	21	2.0	30%	Pass	
Calcium - KCl Extractable	S17-Oc21002	CP	% Ca	0.04	0.04	<1	30%	Pass	
Calcium - Peroxide	S17-Oc21002	CP	% Ca	0.04	0.04	2.0	30%	Pass	
Acid Reacted Calcium	S17-Oc21002	CP	% Ca	< 0.02	< 0.02	<1	30%	Pass	
acidity - Acid Reacted Calcium	S17-Oc21002	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
sulfidic - Acid Reacted Ca equiv. S% pyrite	S17-Oc21002	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
Magnesium - KCl Extractable	S17-Oc21002	CP	% Mg	0.11	0.11	5.0	30%	Pass	
Magnesium - Peroxide	S17-Oc21002	CP	% Mg	0.12	0.12	2.0	30%	Pass	
Acid Reacted Magnesium	S17-Oc21002	CP	% Mg	< 0.02	< 0.02	<1	30%	Pass	
acidity - Acid Reacted Magnesium	S17-Oc21002	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
sulfidic - Acid Reacted Mg equiv. S% pyrite	S17-Oc21002	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
Acid Neutralising Capacity	S17-Oc21002	CP	%CaCO3	n/a	n/a	n/a	30%	Pass	
Acid Neutralising Capacity - Acidity units	S17-Oc21002	CP	mol H+/t	n/a	n/a	n/a	30%	Pass	
ANC Fineness Factor	S17-Oc21002	CP	factor	1.5	1.5	<1	30%	Pass	
Liming rate - SPOCAS	S17-Oc21002	CP	kg CaCO3/t	2.0	2.0	1.0	30%	Pass	
Duplicate									
Chromium Suite				Result 1	Result 2	RPD			
Chromium Reducible Sulfur	S17-Oc21002	CP	% S	< 0.005	< 0.005	<1	30%	Pass	
Chromium Reducible Sulfur -acidity units	S17-Oc21002	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Acid Neutralising Capacity (ANCbt)	S17-Oc21002	CP	%CaCO3	n/a	n/a	n/a	30%	Pass	
Acid Neutralising Capacity - equivalent S% pyrite (s-ANCbt)	S17-Oc21002	CP	% S	n/a	n/a	n/a	30%	Pass	
Net Acidity (Sulfur Units)	S17-Oc21002	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
Net Acidity (Acidity Units)	S17-Oc21002	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
Liming Rate	S17-Oc21002	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-Oc21002	CP	%	20	19	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S01	Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil' multiply 'reported results' x 'wet bulk density of soil in t/m3'
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5
S03	Acid Neutralising Capacity is only required if the pHKCl if greater than or equal to pH 6.5
S04	Acid Sulfate Soil Samples have a 24 hour holding time unless frozen or dried within that period

Authorised By

Nibha Vaidya	Analytical Services Manager
Bryan Wilson	Senior Analyst-Metal (QLD)
Jonathon Angell	Senior Analyst-Inorganic (QLD)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	**Contact Name : Carmen Yi**	**Purchase Order : 2125491**	**COC Number :**
Office Address :	**Project Manager : Kamal Kamalarasa**	**PROJECT Number : 21 25491 53**	**Eurofins | mgt quote ID :** 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results : Paul.mcdougall@ghd.com, Melissa.weber@ghd.com, henry.luo@ghd.com, carmen.yi@ghd.com**	**PROJECT Name : S2B Portion 5**	**Data output format: excel & Esdat**

Special Directions & Comments :

please use suites where possible

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Suite B7A (TRH/PAH (trace)/BTEXN/8 metals/Speciated Phenols)	Suite B7 (TRH/PAH (trace)/BTEXN/8 metals)	Suite B15 (OCP/OPP/PCB)	VOC	Aggressivity Suite (pH, Sulfate, Chloride, EC)	Trip blank – BTEX /TPH C6-C10	Rinsate – metals
1	SRT_BH092_GW	14/11/2017	w	x		x	x	x		
2	SRT_BH094_GW	13/11/2017	w	x		x	x	x		
3	GWQD1	14/11/2017	w		x					
4	GWQR1	14/11/2017	w							x
5	Trip Blank	Lab prepared	w						x	
6	Trip Spike	Lab prepared	w						x	
7										
8	GWQT1	14/11/2017	w		x					
9										
10										
11										
12										
13										
14										
15										
16										

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	1L Amber	500P	250P	1LA	40mL vial	125mL A	Jar	
1	1	1	1		4			
2	1	1	1		4			
3	1		1		2			
4			1					
5					2			
6					2			
7								
8	1		1		2			
9								
10								
11								
12								
13								
14								
15								
16								

Sample comments:

Please check and test aggressivity suite within required holding time

interlab duplicate. Please forward to ALS and analyse as per the COC

Relinquished By:
Carmen Yi

Date & Time :
14/11/2017 10:35

Signature:

Laboratory Staff

Received By: Ursula Lang

Date & Time : 2-32pm 14/11

Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☐ Courier
☑ Hand Delivered
☐ Postal

Courier Consignment # :

MF

Temperature on arrival:

Report number:
572608

15/11 8:57am

eurofins | mgt

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

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Office Address :	Project Manager : Kamal Kamalarasa	PROJECT Number : 21 25491 53	Eurofins | mgt quote ID : 170615GHDN
Level 15, 133 Castlereagh Street, Sydney NSW 2000	Email for results : Paul.mcdougall@ghd.com, Melissa.weber@ghd.com, henry.luo@ghd.com, carmen.yi@ghd.com	PROJECT Name : S2B Portion 5	Data output format: excel & Esdat

Special Directions & Comments :

please use suites where possible

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	Suite B7A (TRH/PAH (trace)/BTEXN/8 metals/Speciated Phenols)	Suite B7 (TRH/PAH (trace)/BTEXN/8 metals)	Suite B15 (OCP/OPP/PCB)	VOC	Aggressivity Suite (pH, Sulfate, Chloride, EC)	Trip blank – BTEX /TPH C6-C10	Rinsate – metals
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2	SRT_BH094_GW	13/11/2017	w	x		x	x	x		
3	GWQD1	14/11/2017	w		x					
4	GWQR1	14/11/2017	w							x
5	Trip Blank	Lab prepared	w						x	
6	Trip Spike	Lab prepared	w						x	
7										
8	GWQT1	14/11/2017	w		x					
9										
10										
11										
12										
13										
14										
15										
16										

Some common holding times (with correct preservation).
For further information contact the lab

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Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1L Amber	500P	250P	1LA	40mL vial	125mL A	Jar
1	1	1		4		
1	1	1		4		
1		1		2		
		1				
				2		
				2		
1		1		2		

Sample comments:

Please check and test aggressivity suite within required holding time

interlab duplicate. Please forward to ALS and analyse as per the COC

Laboratory Staff

Relinquished By: Carmen Yi
Date & Time : 14/11/2017 10:35
Signature:

Received By: Ursula Lang
Date & Time : 2:32pm 14/11
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☐ Courier
☑ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number:

Certificate of Analysis

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention: **Kamal Kamalarasa**

Report **572608-W**
Project name S2B PORTION 5
Project ID 21 25491 53
Received Date Nov 14, 2017

Client Sample ID			**SRT_BH092_GW**	**SRT_BH094_GW**	**GWQD1**	**GWQR1**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M17-No16226**	**M17-No16227**	**M17-No16228**	**M17-No16229**
Date Sampled			**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
TRH C6-C10	0.02	mg/L	0.05	< 0.02	0.03	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.04	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	0.03	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	0.001	< 0.001	0.001	-
m&p-Xylenes	0.002	mg/L	0.006	< 0.002	0.005	-
o-Xylene	0.001	mg/L	0.007	< 0.001	0.005	-
Xylenes - Total	0.003	mg/L	0.013	< 0.003	0.010	-
4-Bromofluorobenzene (surr.)	1	%	116	55	96	-
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	-	-
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	-	-
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	-	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	-	-
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	-	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	-	-
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	-	-
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	-	-
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	-	-
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	-	-
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	-	-
1.2.4-Trimethylbenzene	0.001	mg/L	0.005	< 0.001	-	-
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	-	-

Client Sample ID			SRT_BH092_GW	SRT_BH094_GW	GWQD1	GWQR1
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M17-No16226**	**M17-No16227**	**M17-No16228**	**M17-No16229**
Date Sampled			**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**
Test/Reference	LOR	Unit				
Volatile Organics						
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	-	-
1.3.5-Trimethylbenzene	0.001	mg/L	0.005	< 0.001	-	-
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	-	-
2-Butanone (MEK)	0.001	mg/L	< 0.001	< 0.001	-	-
2-Propanone (Acetone)	0.001	mg/L	< 0.001	< 0.001	-	-
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	-	-
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	< 0.001	-	-
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	-	-
Benzene	0.001	mg/L	< 0.001	< 0.001	-	-
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	-	-
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	-	-
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	-	-
Bromoform	0.001	mg/L	< 0.001	< 0.001	-	-
Bromomethane	0.001	mg/L	< 0.001	< 0.001	-	-
Carbon disulfide	0.001	mg/L	0.001	< 0.001	-	-
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	-	-
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	-	-
Chloroethane	0.001	mg/L	< 0.001	< 0.001	-	-
Chloroform	0.005	mg/L	< 0.005	< 0.005	-	-
Chloromethane	0.001	mg/L	< 0.001	< 0.001	-	-
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	-	-
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	-	-
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	-	-
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	-	-
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	-	-
Ethylbenzene	0.001	mg/L	0.001	< 0.001	-	-
Iodomethane	0.001	mg/L	< 0.001	< 0.001	-	-
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	-	-
m&p-Xylenes	0.002	mg/L	0.006	< 0.002	-	-
Methylene Chloride	0.001	mg/L	< 0.001	< 0.001	-	-
o-Xylene	0.001	mg/L	0.007	< 0.001	-	-
Styrene	0.001	mg/L	< 0.001	< 0.001	-	-
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	-	-
Toluene	0.001	mg/L	< 0.001	< 0.001	-	-
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	-	-
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	-	-
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	-	-
Trichlorofluoromethane	0.001	mg/L	< 0.001	< 0.001	-	-
Vinyl chloride	0.001	mg/L	< 0.001	< 0.001	-	-
Xylenes - Total	0.003	mg/L	0.013	< 0.003	-	-
Total MAH*	0.003	mg/L	0.027	< 0.003	-	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	-	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	-	-
4-Bromofluorobenzene (surr.)	1	%	116	55	-	-
Toluene-d8 (surr.)	1	%	94	58	-	-

Client Sample ID			SRT_BH092_GW	SRT_BH094_GW	GWQD1	GWQR1
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M17-No16226**	**M17-No16227**	**M17-No16228**	**M17-No16229**
Date Sampled			**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	127	77	86	-
p-Terphenyl-d14 (surr.)	1	%	123	108	119	-
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	-	-
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	-	-
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	-	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Toxaphene	0.01	mg/L	< 0.01	< 0.01	-	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	103	int	-	-
Tetrachloro-m-xylene (surr.)	1	%	63	50	-	-

Client Sample ID			SRT_BH092_GW	SRT_BH094_GW	GWQD1	GWQR1
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M17-No16226**	**M17-No16227**	**M17-No16228**	**M17-No16229**
Date Sampled			**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Bolstar	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	-	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Coumaphos	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-S	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-O	0.002	mg/L	< 0.002	< 0.002	-	-
Diazinon	0.002	mg/L	< 0.002	< 0.002	-	-
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	-	-
Dimethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Disulfoton	0.002	mg/L	< 0.002	< 0.002	-	-
EPN	0.002	mg/L	< 0.002	< 0.002	-	-
Ethion	0.002	mg/L	< 0.002	< 0.002	-	-
Ethoprop	0.002	mg/L	< 0.002	< 0.002	-	-
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenthion	0.002	mg/L	< 0.002	< 0.002	-	-
Malathion	0.002	mg/L	< 0.002	< 0.002	-	-
Merphos	0.002	mg/L	< 0.002	< 0.002	-	-
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Mevinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	-	-
Naled	0.002	mg/L	< 0.002	< 0.002	-	-
Omethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Phorate	0.002	mg/L	< 0.002	< 0.002	-	-
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	-	-
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	-	-
Ronnel	0.002	mg/L	< 0.002	< 0.002	-	-
Terbufos	0.002	mg/L	< 0.002	< 0.002	-	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Tokuthion	0.002	mg/L	< 0.002	< 0.002	-	-
Trichloronate	0.002	mg/L	< 0.002	< 0.002	-	-
Triphenylphosphate (surr.)	1	%	145	102	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	-	-
Total PCB*	0.001	mg/L	< 0.0001	< 0.0001	-	-
Dibutylchlorendate (surr.)	1	%	103	int	-	-
Tetrachloro-m-xylene (surr.)	1	%	63	50	-	-

Client Sample ID			SRT_BH092_GW	SRT_BH094_GW	GWQD1	GWQR1
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M17-No16226**	**M17-No16227**	**M17-No16228**	**M17-No16229**
Date Sampled			**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**	**Nov 14, 2017**
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	-
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Phenol-d6 (surr.)	1	%	68	38	43	-
Chloride	1	mg/L	4500	1900	-	-
Conductivity (at 25°C)	1	uS/cm	16000	9400	-	-
pH	0.1	pH Units	5.1	6.2	5.0	-
Sulphate (as SO4)	5	mg/L	1200	1500	-	-
Heavy Metals						
Arsenic	0.001	mg/L	-	-	-	< 0.001
Arsenic (filtered)	0.001	mg/L	< 0.001	0.001	< 0.001	-
Cadmium	0.0002	mg/L	-	-	-	< 0.0002
Cadmium (filtered)	0.0002	mg/L	0.0006	< 0.0002	0.0005	-
Chromium	0.001	mg/L	-	-	-	< 0.001
Chromium (filtered)	0.001	mg/L	0.005	< 0.001	0.003	-
Copper	0.001	mg/L	-	-	-	< 0.001
Copper (filtered)	0.001	mg/L	0.036	< 0.001	0.035	-
Lead	0.001	mg/L	-	-	-	< 0.001
Lead (filtered)	0.001	mg/L	0.004	< 0.001	0.004	-
Mercury	0.0001	mg/L	-	-	-	< 0.0001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	-	-	-	< 0.001
Nickel (filtered)	0.001	mg/L	0.074	0.023	0.070	-
Zinc	0.005	mg/L	-	-	-	< 0.005
Zinc (filtered)	0.005	mg/L	0.29	0.044	0.27	-

Client Sample ID			TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**M17-No16230**	**M17-No16231**
Date Sampled			**Nov 14, 2017**	**Nov 14, 2017**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	92
TRH C6-C10	0.02	mg/L	< 0.02	75
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	74
BTEX				
Benzene	0.001	mg/L	< 0.001	95
Toluene	0.001	mg/L	< 0.001	90
Ethylbenzene	0.001	mg/L	< 0.001	93
m&p-Xylenes	0.002	mg/L	< 0.002	89
o-Xylene	0.001	mg/L	< 0.001	92
Xylenes - Total	0.003	mg/L	< 0.003	90
4-Bromofluorobenzene (surr.)	1	%	117	118

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 16, 2017	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons	Melbourne	Nov 16, 2017	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 17, 2017	7 Day
- Method: LTM-ORG-2010 TRH C6-C36			
BTEX	Melbourne	Nov 16, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 17, 2017	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Nov 17, 2017	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Phenols (Halogenated)	Melbourne	Nov 17, 2017	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Phenols (non-Halogenated)	Melbourne	Nov 17, 2017	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Metals M8 filtered	Melbourne	Nov 16, 2017	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Volatile Organics	Melbourne	Nov 16, 2017	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Conductivity (at 25°C)	Melbourne	Nov 16, 2017	28 Day
- Method: LTM-INO-4030			
pH	Melbourne	Nov 23, 2017	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Metals M8	Melbourne	Nov 16, 2017	28 Days
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Nov 17, 2017	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Nov 17, 2017	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Nov 17, 2017	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Eurofins | mgt Suite B18			
Chloride	Melbourne	Nov 16, 2017	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO4)	Melbourne	Nov 16, 2017	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			

eurofins | mgt

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Address: Level 15, 133 Castlereagh Street
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Project Name: S2B PORTION 5
Project ID: 21 25491 53

Order No.: 2125491
Report #: 572608
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Nov 14, 2017 2:32 PM
Due: Nov 21, 2017
Priority: 5 Day
Contact Name: Kamal Kamalarasa

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Conductivity (at 25°C)	pH	Metals M8	Eurofins | mgt Suite B15	Eurofins | mgt Suite B18	Volatile Organics	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	SRT_BH092_GW	Nov 14, 2017		Water	M17-No16226	X	X		X	X	X	X	
2	SRT_BH094_GW	Nov 14, 2017		Water	M17-No16227	X	X		X	X	X	X	
3	GWQD1	Nov 14, 2017		Water	M17-No16228		X					X	
4	GWQR1	Nov 14, 2017		Water	M17-No16229			X					
5	TRIP BLANK	Nov 14, 2017		Water	M17-No16230								X
6	TRIP SPIKE	Nov 14, 2017		Water	M17-No16231								X
Test Counts						2	3	1	2	2	2	3	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
2-Propanone (Acetone)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.0001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Chloride	mg/L	< 1			1	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	109			70-130	Pass	
TRH C6-C10	%	108			70-130	Pass	
TRH >C10-C16	%	103			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	106			70-130	Pass	
TRH C10-C14	%	114			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	113			70-130	Pass	
Toluene	%	110			70-130	Pass	
Ethylbenzene	%	108			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	%	106			70-130	Pass	
Xylenes - Total	%	105			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	113			70-130	Pass	
1.1.1-Trichloroethane	%	99			70-130	Pass	
1.2-Dichlorobenzene	%	115			70-130	Pass	
1.2-Dichloroethane	%	112			70-130	Pass	
Trichloroethene	%	115			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	99			70-130	Pass	
Acenaphthylene	%	101			70-130	Pass	
Anthracene	%	98			70-130	Pass	
Benz(a)anthracene	%	115			70-130	Pass	
Benzo(a)pyrene	%	114			70-130	Pass	
Benzo(b&j)fluoranthene	%	98			70-130	Pass	
Benzo(g.h.i)perylene	%	112			70-130	Pass	
Benzo(k)fluoranthene	%	126			70-130	Pass	
Chrysene	%	128			70-130	Pass	
Dibenz(a.h)anthracene	%	120			70-130	Pass	
Fluoranthene	%	129			70-130	Pass	
Fluorene	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	117			70-130	Pass	
Naphthalene	%	89			70-130	Pass	
Phenanthrene	%	103			70-130	Pass	
Pyrene	%	129			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	121			70-130	Pass	
4.4'-DDE	%	99			70-130	Pass	
4.4'-DDT	%	102			70-130	Pass	
a-BHC	%	99			70-130	Pass	
Aldrin	%	97			70-130	Pass	
b-BHC	%	105			70-130	Pass	
d-BHC	%	103			70-130	Pass	
Dieldrin	%	98			70-130	Pass	
Endosulfan I	%	96			70-130	Pass	
Endosulfan II	%	104			70-130	Pass	
Endosulfan sulphate	%	106			70-130	Pass	
Endrin	%	80			70-130	Pass	
Endrin aldehyde	%	87			70-130	Pass	
Endrin ketone	%	89			70-130	Pass	
g-BHC (Lindane)	%	108			70-130	Pass	
Heptachlor	%	93			70-130	Pass	
Heptachlor epoxide	%	102			70-130	Pass	
Hexachlorobenzene	%	95			70-130	Pass	
Methoxychlor	%	81			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	118			70-130	Pass	
Dimethoate	%	109			70-130	Pass	
Ethion	%	81			70-130	Pass	
Fenitrothion	%	90			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methyl parathion	%	89			70-130	Pass	
Mevinphos	%	118			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	117			30-130	Pass	
2.4-Dichlorophenol	%	110			30-130	Pass	
2.4.5-Trichlorophenol	%	124			30-130	Pass	
2.4.6-Trichlorophenol	%	84			30-130	Pass	
2.6-Dichlorophenol	%	126			30-130	Pass	
4-Chloro-3-methylphenol	%	68			30-130	Pass	
Pentachlorophenol	%	114			30-130	Pass	
Tetrachlorophenols - Total	%	116			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	83			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	100			30-130	Pass	
2-Methylphenol (o-Cresol)	%	40			30-130	Pass	
2-Nitrophenol	%	121			30-130	Pass	
2.4-Dimethylphenol	%	54			30-130	Pass	
2.4-Dinitrophenol	%	71			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	59			30-130	Pass	
4-Nitrophenol	%	52			30-130	Pass	
Dinoseb	%	112			30-130	Pass	
Phenol	%	62			30-130	Pass	
LCS - % Recovery							
Chloride	%	102			70-130	Pass	
Sulphate (as SO4)	%	114			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	112			80-120	Pass	
Arsenic (filtered)	%	112			80-120	Pass	
Cadmium	%	91			80-120	Pass	
Cadmium (filtered)	%	91			80-120	Pass	
Chromium	%	119			80-120	Pass	
Chromium (filtered)	%	119			80-120	Pass	
Copper	%	102			80-120	Pass	
Copper (filtered)	%	102			80-120	Pass	
Lead	%	103			80-120	Pass	
Lead (filtered)	%	103			80-120	Pass	
Mercury	%	89			75-125	Pass	
Mercury (filtered)	%	89			70-130	Pass	
Nickel	%	114			80-120	Pass	
Nickel (filtered)	%	114			80-120	Pass	
Zinc	%	111			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Chloride	M17-No16462	NCP	%	91			70-130	Pass	
Sulphate (as SO4)	M17-No16574	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M17-No16226	CP	%	98			70-130	Pass	
Cadmium (filtered)	P17-No18277	NCP	%	89			70-130	Pass	
Chromium (filtered)	M17-No16226	CP	%	109			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper (filtered)	P17-No18277	NCP	%	96			70-130	Pass	
Lead (filtered)	M17-No16226	CP	%	87			70-130	Pass	
Mercury (filtered)	P17-No18277	NCP	%	92			70-130	Pass	
Nickel (filtered)	M17-No16226	CP	%	92			70-130	Pass	
Zinc (filtered)	P17-No18277	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M17-No16227	CP	%	85			70-130	Pass	
Dimethoate	M17-No16227	CP	%	75			70-130	Pass	
Ethion	M17-No16227	CP	%	129			70-130	Pass	
Fenitrothion	M17-No16227	CP	%	103			70-130	Pass	
Methyl parathion	M17-No16227	CP	%	94			70-130	Pass	
Mevinphos	M17-No16227	CP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M17-No17228	NCP	%	100			75-125	Pass	
Cadmium	M17-No17228	NCP	%	88			75-125	Pass	
Chromium	M17-No17228	NCP	%	103			75-125	Pass	
Copper	M17-No17228	NCP	%	93			75-125	Pass	
Lead	M17-No17228	NCP	%	99			75-125	Pass	
Mercury	M17-No17228	NCP	%	94			70-130	Pass	
Nickel	M17-No17228	NCP	%	104			75-125	Pass	
Zinc	M17-No17228	NCP	%	103			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M17-No16226	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M17-No16226	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M17-No16226	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M17-No16226	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M17-No16226	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M17-No16226	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M17-No16226	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M17-No16226	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M17-No16226	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M17-No16226	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M17-No16226	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M17-No16226	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M17-No16226	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M17-No16226	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M17-No16226	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M17-No16226	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M17-No16226	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M17-No16226	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M17-No16226	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M17-No16226	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M17-No16226	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M17-No16226	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M17-No16226	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M17-No16226	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M17-No16226	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-No16226	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M17-No16226	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
Dinoseb	M17-No16226	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M17-No16226	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M17-No16461	NCP	mg/L	36000	36000	1.0	30%	Pass	
Conductivity (at 25°C)	M17-No16226	CP	uS/cm	16000	16000	1.0	30%	Pass	
pH	M17-No16226	CP	pH Units	5.1	5.1	pass	30%	Pass	
Sulphate (as SO4)	M17-No16461	NCP	mg/L	4500	4600	1.2	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M17-No16226	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M17-No16226	CP	mg/L	0.0006	0.0005	6.0	30%	Pass	
Chromium (filtered)	M17-No16226	CP	mg/L	0.005	0.003	50	30%	Fail	Q15
Copper (filtered)	M17-No16226	CP	mg/L	0.036	0.034	5.0	30%	Pass	
Lead (filtered)	M17-No16226	CP	mg/L	0.004	0.004	4.0	30%	Pass	
Mercury (filtered)	M17-No16226	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M17-No16226	CP	mg/L	0.074	0.073	2.0	30%	Pass	
Zinc (filtered)	M17-No16226	CP	mg/L	0.29	0.28	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M17-No17228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M17-No17228	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M17-No17228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M17-No17228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M17-No17228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M17-No17228	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M17-No17228	NCP	mg/L	0.004	0.004	3.0	30%	Pass	
Zinc	M17-No17228	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M17-No16230	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M17-No16230	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M17-No16230	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M17-No16230	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M17-No16230	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M17-No16230	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M17-No16230	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M17-No16230	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M17-No16230	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

eurofins | mgt

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4

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name : Carmen Yi	Purchase Order : 2125491	COC Number :
Office Address :	Project Manager : Kamal Kamalarasa	PROJECT Number : 21 25491 53	Eurofins | mgt quote ID :
Level 15, 133 Castlereagh Street, Sydney NSW 2000	Email for results : Paul.mcdougall@ghd.com, Melissa.weber@ghd.com, henry.luo@ghd.com, carmen.yi@ghd.com	PROJECT Name : S2B Portion 5	Data output format: excel & Esdat

Special Directions & Comments :

please use suites where possible

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	Suite B7A (TRH/PAH (trace)/BTEXN/8 metals/Speciated Phenols)	Suite B7 (TRH/PAH (trace)/BTEXN/8 metals)	Suite B15 (OCP/OPP/PCB)	VOC	Aggressivity Suite (pH, Sulfate, Chloride, EC)	Trip blank – BTEX /TPH C6-C10	Rinsate – metals
1	SRT_BH092_GW	14/11/2017	w	x		x	x	x		
2	SRT_BH094_GW	13/11/2017	w	x		x	x	x		
3	GWQD1	14/11/2017	w		x					
4	GWQR1	14/11/2017	w							x
5	Trip Blank	Lab prepared	w						x	
6	Trip Spike	Lab prepared	w						x	
7										
8	GWQT1	14/11/2017	w		x					
9										
10										
11										
12										
13										
14										
15										
16										

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	1L Amber	500P	250P	1LA	40mL vial	125mL A	Jar	Sample comments:
1	1	1	1		4			Please check and test aggressivity suite within required holding time
2	1	1	1		4			
3	1		1		2			
4			1					
5					2			
6					2			
7								
8			1		2			interlab duplicate. Please forward to ALS and analyse as per the COC
9								
10								
11								
12								
13								
14								
15								
16								

Environmental Division
Melbourne
Work Order Reference
EM1715674

Telephone : + 61-3-8549 9600

Relinquished By:	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Carmen Yi	Received By: Vasha Lang	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☐ Courier	
Date & Time : 14/11/2017 10:35	Date & Time : 2:32pm 14/11	5 DAY ☑ 10 DAY ☐ Other:	☑ Hand Delivered	Report number:
Signature:	Signature:		☐ Postal	
			Courier Consignment # :	

16/11 2:25

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1715674**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: KAMAL KAMALARASA	Contact	: Shirley LeCornu
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 21 25491 53	Date Samples Received	: 16-Nov-2017 08:25
Order number	: 2125491	Date Analysis Commenced	: 16-Nov-2017
C-O-C number	: ----	Issue Date	: 21-Nov-2017 17:17
Sampler	: ----		
Site	: S2B Portion 5		
Quote number	: EN/005/16		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	GWQT1	----	----	----	----
				Client sampling date / time	14-Nov-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1715674-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0006**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.037**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.004**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.066**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.320**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		**1.1**	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		**1.1**	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		**30**	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		**80**	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		**100**	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**180**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	GWQT1	----	----	----	----
				Client sampling date / time	14-Nov-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1715674-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		**40**	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		**20**	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**120**	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**120**	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		**8**	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		**8**	----	----	----	----
^ **Total Xylenes**	1330-20-7	2	µg/L		**16**	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		**16**	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**45.3**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**92.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**116**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**87.5**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**89.3**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**94.5**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**102**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**101**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**116**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1715674**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: KAMAL KAMALARASA	Contact	: Shirley LeCornu
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 21 25491 53	Date Samples Received	: 16-Nov-2017
Order number	: 2125491	Date Analysis Commenced	: 16-Nov-2017
C-O-C number	: ----	Issue Date	: 21-Nov-2017
Sampler	: ----		
Site	: S2B Portion 5		
Quote number	: EN/005/16		
No. of samples received	: 1		
No. of samples analysed	: 1		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1248610)									
EM1715672-010	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0004	0.0003	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.021	0.021	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.008	0.008	0.00	No Limit
EM1715672-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1248609)									
EM1715672-010	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1715672-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1250459)									
EM1715674-001	GWQT1	EP080: C6 - C9 Fraction	----	20	µg/L	30	30	0.00	No Limit
EM1715701-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1250459)									
EM1715674-001	GWQT1	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.00	No Limit
EM1715701-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1250459)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1250459) - continued									
EM1715674-001	GWQT1	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	8	8	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	8	8	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1715701-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1248610)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.7	91	107
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.4	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.6	83	103
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.2	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.2	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.9	82	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.7	85	109
EG035F: Dissolved Mercury by FIMS (QCLot: 1248609)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.9	81	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1250769)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	50 µg/L	88.4	39	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	50 µg/L	94.1	40	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	50 µg/L	99.4	47	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	50 µg/L	97.6	51	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	50 µg/L	101	53	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	50 µg/L	93.4	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	50 µg/L	97.2	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	50 µg/L	90.8	58	123
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	50 µg/L	98.7	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	50 µg/L	86.6	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	50 µg/L	114	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	50 µg/L	104	57	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	50 µg/L	105	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	50 µg/L	105	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	50 µg/L	103	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	50 µg/L	109	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1250459)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	108	67	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1250770)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	102	53	123
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	111	57	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	105	55	141
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1250459)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1250459) - continued								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	106	65	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1250770)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	104	54	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	107	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	116	51	137
EP080: BTEXN (QCLot: 1250459)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	96.8	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	104	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	105	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	112	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	108	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	102	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1248610)							
EM1715672-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	85	131
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	105	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	103	71	135
		EG020A-F: Copper	7440-50-8	0.2 mg/L	102	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	102	75	133
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	103	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	106	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 1248609)							
EM1715672-002	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	87.4	70	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1250459)							
EM1715701-003	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	86.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1250459)							
EM1715701-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	83.6	44	122
EP080: BTEXN (QCLot: 1250459)							
EM1715701-003	Anonymous	EP080: Benzene	71-43-2	20 µg/L	94.1	68	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 1250459) - continued							
EM1715701-003	Anonymous	EP080: Toluene	108-88-3	20 µg/L	103	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1715674**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: KAMAL KAMALARASA	Telephone	: +61-3-8549 9630
Project	: 21 25491 53	Date Samples Received	: 16-Nov-2017
Site	: S2B Portion 5	Issue Date	: 21-Nov-2017
Sampler	: ----	No. of samples received	: 1
Order number	: 2125491	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation* ***Date extracted***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) GWQT1	**14-Nov-2017**	**----**	----	----	**17-Nov-2017**	13-May-2018	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) GWQT1	**14-Nov-2017**	**----**	----	----	**17-Nov-2017**	12-Dec-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) GWQT1	**14-Nov-2017**	**17-Nov-2017**	21-Nov-2017	✓	**20-Nov-2017**	27-Dec-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) GWQT1	**14-Nov-2017**	**17-Nov-2017**	21-Nov-2017	✓	**20-Nov-2017**	27-Dec-2017	✓
Clear glass VOC vial - HCl (EP080) GWQT1	**14-Nov-2017**	**17-Nov-2017**	28-Nov-2017	✓	**17-Nov-2017**	28-Nov-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) GWQT1	**14-Nov-2017**	**17-Nov-2017**	21-Nov-2017	✓	**20-Nov-2017**	27-Dec-2017	✓
Clear glass VOC vial - HCl (EP080) GWQT1	**14-Nov-2017**	**17-Nov-2017**	28-Nov-2017	✓	**17-Nov-2017**	28-Nov-2017	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080) GWQT1	**14-Nov-2017**	**17-Nov-2017**	28-Nov-2017	✓	**17-Nov-2017**	28-Nov-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

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Revision	Author	Reviewer		Approved for Issue		
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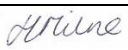
Rev 1	Keith Holden / Henry Luo	Helen Milne		Greg Bowyer		7/12/2017

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