ASHBURY FMBM PTY LTD

DETAILED SITE INVESTIGATION REPORT
PROPOSED MIXED-USE DEVELOPMENT
149-163 MILTON STREET, ASHBURY

Report E22851 AA Rev0
25 February 2016

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

REPORT DISTRIBUTION

Detailed Site Investigation Report
Proposed Mixed-use Development
149-163 Milton Street, Ashbury

EI Report No.: E22851 AA Rev0
Date: 25 February 2016

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EXECUTIVE SUMMARY

Background

Ashbury FMBM Pty Ltd engaged Environmental Investigations Australia Pty Ltd (EI) to conduct a Detailed Site Investigation Report (Stage 2 DSI) for the commercial property located at 149-163 Milton Street, Ashbury ('the site'). This environmental assessment was undertaken as part of a development application process through Canterbury City Council for the development of six, three to eight-storey residential buildings over a basement carpark.

Based on a previous Stage 1 Preliminary Site Investigation (URS, 2014) the site was historically used for various commercial / industrial land uses including brick making, a former vehicle refuelling area, motor vehicle maintenance and servicing of firefighting equipment.

Objectives

The main objectives of the assessment were to:

- Characterise site environmental conditions in relation to the nature, degree and sources of any soil, vapour and groundwater impacts;
- Target potentially impacted areas identified during the preliminary stages of the assessment for intrusive investigation;
- Understand the influence of site specific, geologic and hydrogeological conditions on the potential fate and transport of any impacts that may be identified;
- Evaluate potential risks that identified impacts may pose to human health and the environment; and
- Where site contamination is confirmed, provide data to assist in the selection and design of appropriate remedial options.

Findings

- The site comprised an irregular shaped block, covering a total area of approximately 1.654 hectares. The site was bound by Milton Street (east), Wagener Oval (west), commercial / residential (south) and residential dwellings (north). At the time of investigation the site was occupied by five, one to three-storey, brick/brick and metal commercial buildings, with the remaining areas of the site covered by concrete or bitumen paved, open car-parking.
- A previous Stage 1, Environmental Site Assessment and a Tank Removal Validation Assessment were undertaken by URS in October, 2014 and identified the following:
    - The site history included various commercial / industrial uses including brick making, a former vehicle refuelling area, motor vehicle maintenance and servicing of firefighting equipment;
    - Potentially contaminating land use activities that were identified included:
        - Brick making- use of glazes in kilns containing heavy metals including lead,
        - Former vehicle refuelling area – potential spills and leaks associated with three former USTs;

    - Motor vehicle maintenance: spills and leaks of fuels and oils from vehicles and machinery (including possible winch or hydraulic lift);
    - Demolition of possible residential structure (1970 - 1994): potential burial of demolition waste, including asbestos on site;
    - Two electrical substations / transformers are present on the site, which may potentially contain polychlorinated biphenyl (PCB) containing transformer oils; and
    - Servicing of firefighting equipment – including carbon dioxide and dry powder.
  - The Tank Removal Validation Assessment confirmed that three USTs (15,000 L and two 25,000 L) and associated pipework were excavated and removed from the site, with the tank pit validated in a manner consistent with the relevant guidelines, and the tank pit was filled with certified, imported backfill material.
- EI consider a potential source of contamination at the site to be the potential for migration of landfill gas from the adjoining former landfill located immediately south west of the site.
- Soil sampling and analysis was conducted at twenty nine (29) targeted test bore locations down to a maximum depth of 18 m BGL. Sampling regime was considered to be appropriate for investigation purposes and comprised judgemental and systematic sampling patterns, with allowance for structural obstacles (e.g. building walls, underground and overhanging services and other physical obstructions in use by existing operating businesses);
- The sub-surface layers comprised of fill materials averaging 1-2 m thick and consisting of various constituents including bricks and gravels, overlying residual soils and weathered Ashfield shale at depth;
- Groundwater was encountered at depths ranging from 1.77 – 8.315 metres below ground level;
- Results of soil samples analysed identified fibrous asbestos in fill samples at boreholes BH4 and BH19 located within the south western and north eastern portions of the site, respectively. Vertical delineation was achieved in BH19, with the deeper natural soil sample being free of asbestos containing material, indicating that asbestos contamination is likely to be confined to the fill layer within the area.
- Exceedances of the heavy metal nickel, above the adopted EIL criteria was detected in multiple soil samples across the site, at locations outside of the proposed building footprint areas. However, the results are fairly uniform across the site, indicating a widespread / regional variation which is therefore not considered a cause for concern.
- There were no exceedances of PAHs, BTEX,OCPs, OPPs and PCBs in soil samples analysed during this investigation;
- Elevated concentrations of heavy metals were detected in all of the groundwater monitoring wells (BH1M, BH3M, BH4M, BH7M and BH8M), with the highest concentration detected within BH3M. However, the results are indicative of natural background concentrations, with the risk considered to be low;
- Concentrations of Trihalomethanes (THMs) including chloroform, bromodichloromethane and dibromochloromethane were reported in groundwater recovered from all of the groundwater monitoring wells. As the concentrations are relatively uniform across the site, it is considered likely that the source is from a leaking reticulated water pipe on site, and therefore the risk of the reported THMs is considered to be low.

- On review of the Preliminary Conceptual Site Model (CSM) developed as part of this ESA, it was concluded that it is valid for the proposed development. The following data gaps however remain and require closure by further investigations:
    - The vertical and lateral extent of asbestos contamination exceeding adopted human-health criteria at boreholes BH4 and BH19 identified at the site;
    - Potential for landfill gas to be present within sub-surface materials across the site, particularly within the western portion of the site which is immediately adjacent to the former landfill, currently used as the Wagener Oval.
    - The quality of soils located in the footprint of the existing site buildings which were inaccessible during this investigation; and
    - Potential presence of hazardous materials present within the existing structure.

Conclusions and Recommendations

Based on the findings of this report and with consideration of the Statement of Limitations, EI conclude that contamination was identified at the site during this DSI. Concentrations exceeding human health based SILs for asbestos were identified in surface fill material within the south western and north eastern areas of the site. In addition, there is potential landfill gas to be present within the sub-surface material at the site, sourced from the adjacent landfill, which will require further investigation.

While soil and groundwater contamination was identified at the site, EI concludes the site can be remediated in accordance with SEPP 55 to allow the site to be used for low density residential purposes, as outlined in the proposed development plans, subject to the implementation of the following recommendations:

- Prior to site demolition, carry out a Hazardous Materials Survey on existing site structures to identify potentially hazardous building products that may be released to the environment during demolition;
- Preparation and implementation of a Remedial Action Plan (RAP), which should:
    - Outline the remediation requirements for soil identified and to close the existing data gaps identified during this DSI and other contamination that may be identified during data gap closure investigations;
    - Undertake a detailed ground gas investigation to assess the potential risks at the site in accordance with the *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (EPA , 2012);
    - Provide the requirements and procedure for waste classification assessment, in order to enable classification of site soils to be excavated and disposed off-site, in accordance with the *Waste Classification Guidelines* (EPA, 2014); and
    - Provide a SAQP for the validation of remediation activities performed on-site.
- Undertake supplementary investigations, and subsequent remediation and validation works for the site, as outlined in the RAP. EI note that due to current site constrains, the additional investigations and remediation

works may be conducted after site demolition when access to areas of environmental concern is made available; and

- Preparation of a validation report by a suitably qualified environmental consultant, certifying site suitability of soils and groundwater for the proposed land use.

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ABBREVIATIONS

TABLES (In Text)

TABLES

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1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE

Mr Felex Milgrom of Ashbury FMBM Pty Ltd (the Client) engaged Environmental Investigations Australia Pty Ltd (EI) to conduct a Detailed Site Investigation Report (DSI) for site characterisation purposes within Proposed Mixed-use Development, located at 149-163 Milton Street, Ashbury ('the site').

As shown in **Figure 1**, the site is currently used for commercial purposes, including offices and warehouses and is located approximately 8.5 km southwest of the Sydney central business district comprising Lot B and C DP30778. The site is situated within the Local Government Area of Canterbury City Council and site covers a total area of approximately 1.645 hectares (16, 450m^2) as depicted in the site plan presented as **Figure 2**.

This assessment was conducted in support of a Development Application (DA) to Canterbury City Council and for the purpose of enabling the developer to meet its obligations under the Contaminated Land Management Act 1997 (CLM Act), for the assessment and management of contaminated soil and/or groundwater.

1.2 PROPOSED DEVELOPMENT

Prior to the investigation, the Client supplied EI with:

- Concept architectural drawing prepared by CMT Architects Australia Pty Ltd, Project Residential Development 149-163 Milton St, Ashbury 2193, Drawing Title *Concept & Calcs*, dated 25 January 2016; and
- Detailed survey plan of the site prepared by Dunlop Thorpe & Co. Pty Ltd, Reference No. 18304, dated 21 January 2015.

Based on these concept drawings, EI understands that the proposed development involves the demolition of existing structures and the construction of six, three to eight-storey buildings over a basement carpark.

No details regarding the depth of basement carpark was provided to EI at the time of the investigation. This report must be revised once further details become available. Copied of the development plans are provided in **Appendix A**.

1.3 REGULATORY FRAMEWORK

The following regulatory framework and guidelines were considered during the preparation of this report:

- ANZECC & ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*;
- DECCW (2009) *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008*, (UPSS Guidelines);
- DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination*;
- DEC (2006) *Guidelines for the NSW Site Auditor Scheme (2nd Edition)*;
- EPA (1995) *Sampling Design Guidelines*;
- EPA (2014) *Technical Note: Investigation of Service Station Sites*;
- EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*;

- NEPC (2013) *Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater*;
- NEPC (2013) *Schedule B(2) Guideline on Site Characterisation*;
- *Contaminated Land Management Act (1997)*;
- State Environment Protection Policy 55 (SEPP 55) – *Remediation of Land*, and
- OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

1.4 PROJECT OBJECTIVES

In accordance with the Development Application requirements, the proponent is required to undertake a detailed contamination assessment for any future development applications. The primary objectives of this investigation were therefore to:

- Characterise site environmental conditions in relation to the nature, degree and sources of any soil, vapour and groundwater impacts;
- Target potentially impacted areas identified during the preliminary stages of the assessment for intrusive investigation;
- Understand the influence of site specific, geologic and hydrogeological conditions on the potential fate and transport of any impacts that may be identified;
- Evaluate potential risks that identified impacts may pose to human health and the environment; and
- Where site contamination is confirmed, provide data to assist in the selection and design of appropriate remedial options.

1.5 SCOPE OF WORKS

In order to achieve the above objectives and in keeping the project cost-effective while generally complying with the OEH (2011) guidelines for consultants reporting on contaminated sites, the scope of works was as follows:

1.5.1 Desktop Study

- A review of the pervious Environmental Site Assessments undertaken for the site;
- A review of existing underground services on site.

1.5.2 Field Work & Laboratory Analysis

- A detailed site walkover inspection;
- Drilling of boreholes at 26 locations across accessible areas of the site in accordance with the minimum sampling protocol recommended under EPA (1995);
- Installation of five groundwater monitoring wells installed to a maximum depth of 6 m (or prior refusal), constructed to standard environmental protocols to investigate potential groundwater contamination;

- Multiple level soil sampling within fill and natural soils and one round of groundwater sampling from the constructed groundwater monitoring wells; and
- Laboratory analysis of selected soil and groundwater samples for relevant analytical parameters as determined from the site history survey and field observations during the investigation programme.

1.5.3 Data Analysis and Reporting

A DSI report would also be prepared to document desk study findings, the conceptual site model, data quality objectives, investigation methodologies and results. The report would also provide a record of observations made during the detailed site walkover inspection, borehole and monitoring well construction logs and a discussion of laboratory analytical results in regards to potential risks to human health, the environment and the aesthetic uses of the land.

2. SITE DESCRIPTION

2.1 PROPERTY IDENTIFICATION, LOCATION AND PHYSICAL SETTING

The site identification details and associated information are presented in **Table 2-1**, while the site locality is shown in **Figure 1**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	149-163 Milton Street, Ashbury
Location Description	Approx. 8.5 km south west of Sydney CBD, an irregular shaped block bound by Milton Street (east), Wagener Oval (west), commercial / residential (south) and residential dwellings (north). Northeast corner of site: GDA94-MGA55 Easting:881044.427, Northing: 6241778.495 (Source: http://maps.six.nsw.gov.au)
Site Area	The site is approximately 1.645 ha (Dunlop Thorpe & Co. Pty Ltd)
Site Owner	Ashbury FMBM Pty Ltd
Lot and Deposited Plan (DP)	Lot B and C DP30778
State Survey Marks	One State Survey Mark (SSM) is situated in close proximity to the site: SS137399 on the Corner of Constitution Drive and Gale Street and SS122875 on the corner of Milton Street, adjacent to the north eastern area of the site (Source: http://maps.six.nsw.gov.au)
Local Government Authority	Canterbury City Council
Parish	Petersham
County	Cumberland
Current Zoning	IN2 – Light Industrial Development (Canterbury Local Environment Plan, 2012)
Current Land Uses	At the time of in investigation the site was occupied by five, one to three-storey, brick/brick and metal commercial buildings, the remaining areas were covered in concrete or bitumen paved, open car-parking.

The site location is provided in **Figure 1** with the assessment area is illustrated in **Figure 2**.

2.2 SURROUNDING LAND USE

The site is situated within an area of mixed land uses and current uses. Current uses of surrounding land are described in **Table 2-2**.

Table 2-2 Surrounding Land Uses

Direction Relative to Site	Land Use Description
North	Single-storey brick residential dwellings. The closest residential dwellings lie immediately adjacent to the northern site boundary.
South	A large warehouse facility and associated two-storey brick office space. The warehouse is set back about 9m from the southern site boundary.
East	A large warehouse facility and associated two-storey brick office space. The warehouse is set back about 9m from the southern site boundary.
West	Open recreational space ("Wagener Oval"). Wagener Oval was previously used as a brick pit which was filled with landfill waste and re-developed into an oval.

The following sensitive land uses were identified to be present within close proximity to the site:

- Ashbury Public School located approximately 330 m south;
- Woodstock Childcare Centre located approximately 320 m north west; and
- St. Francis Xavier's Primary School Ashbury located approximately 450 m west of the site.

2.3 REGIONAL SETTING

Regional topography, geology, soil landscape and hydrogeological information are summarised in **Table 2-3**.

Table 2-3 Regional Setting Information

Attribute	Description
Topography	The regional topography typically comprises a north-northwest trending spur line running along the alignment of Milton Street. Site topography slopes downwards to the west, from an RL of approximately 40.8m AHD at the eastern side of the site, to approximately 33.2m AHD at the north-west corner of the site (Dunlop Thorpe & Co. Pty Ltd).
Site Drainage	Consistent with the general slope of the site, stormwater is assumed to flow west via drainage systems discharging to various stormwater easements and the municipal stormwater system.
Regional Geology	Information on regional sub-surface conditions, referenced from the Department of Mineral Resources Geological Map Sydney 1:100,000 Geological Series Sheet 9130 (DMR 1991) indicates the site to be underlain by Ashfield Shale of the Wianamatta Group, which typically comprises black to dark grey shale and laminite. Ashfield Shale generally weathers into silty clay of medium to high plasticity. The site is located approximately 100m to the north of the Fairfield Basin anticline.
Previous Wagener Oval	The area to the immediate west of the site was used as a brick pit and brick works as shown in 1943 aerial photography of the site available from SIX Maps (maps.six.nsw.gov.au). The site was presumably subsequently used as a landfill and is currently in use as public recreational space (WH Wagener Oval).

Attribute	Description
Soil Landscapes	The Soil Conservation Service of NSW Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 1989) indicates that the site overlies the Blacktown (bt) Erosional Landscape, which typically includes gently undulating rises on Wianamatta Group Shales and Hawkesbury Shale. Soils are generally shallow to moderately deep (>100 cm) red and brown podzolic soils on crests, upper slopes and well-drained areas. Deeper (150-300 cm) yellow podzolic soils and soloths on the lower slopes and in areas of poor drainage.
Acid Sulfate Soil Risk	With reference to the Botany Bay Acid Sulfate Soil Risk Map (1:25,000 scale; Murphy, 1997), the subject land lies within the map class description of *No Known Occurrence*. In such cases, acid sulphate soils (ASS) are not known or expected to occur and "land management activities are not likely to be affected by ASS materials". The Canterbury City Council Local Environmental Plan 2012- Acid Sulfate Soils Risk Class 1:1,000 scale Map indicates that the site lies within an area of no known occurrences. However, the site is located within close proximity to a Class 5 ASS area. Based on the regional geology of the area which includes the Ashfield Shale, the risk of ASS on site is considered to be low.
Nearest Surface Water Feature	Cooks River which is located approximately 1.21 km south west of the site and forms the nearest receiving surface water body in relation to the site. This part of the river is considered to be tidally influenced and is therefore classed as a marine water ecosystem.
Groundwater Flow Direction	Groundwater is anticipated to flow in the direction of Cooks River located towards the south west of the site, which ultimately drains to Botany Bay approximately 7.5 km south of the site.
Hydraulic Conductivity	Groundwater flow through the Ashfield Shale is documented to be influenced by the bedrock fracture system with hydraulic conductivities estimated to be <1 L/s or 0.1 ML/day (McNally, 2004).

2.4 GROUNDWATER BORE RECORDS AND LOCAL GROUNDWATER USE

An online search of registered groundwater bores was conducted by EI on the 22nd of February 2016 through the NSW Office of Water (Ref. http:// realtimedata.water.nsw.gov.au/water.stm). There were no registered bores within a 500 m radius of the site.

2.5 SITE WALKOVER INSPECTION

A detailed site walkover inspection was undertaken by EI on 20 February, 2016. The following observations were made:

- The site was occupied by five, one to three-storey, brick/brick and metal commercial buildings, the remaining areas were covered in concrete or bitumen paved, open car-parking (**Photo 1, 2** and **3**);
- Vegetation present on site was in good condition, with no obvious signs of distress;
- Concrete / bitumen was identified to be in good condition across the site;
- The site buildings were observed to be in good condition;
- Two electrical sub-stations were identified within the central portion of the site (**Figure 2**);
- A potential Underground Petroleum Storage System (UPSS) was identified within the northern portion of the site (refer to **Figure 2**), with evidence of a sump in the ground and potential for the building to have been used as a previous mechanical workshop; and
- A former landfill was identified as being present along the south western boundary of the site, with the potential for off-site migration of landfill gas (**Photo 4**).

A detailed photo log is provided in **Appendix B**.

3. PREVIOUS INVESTIGATIONS

3.1 AVAILABLE DOCUMENTS

The following previous environmental site assessments were provided to EI for review:

- URS (2014a) *Phase 1 Environmental Site Assessment at 149 – 163 Milton Street, Ashbury NSW* (Ref. URS Report No. 43218503/0/1, 10 October 2014); and
- URS (2014b) *Tank Removal Validation Assessment, Chubb Security Site, 149-155 Milton Road, Ashfield NSW* (Ref. URS Report No. 43217264, 27 October, 2014)

A summary of URS's works and key findings is outlined in **Table 3-1**.

Table 3-1 Summary of Previous Investigation Works and Findings

Assessment Details	Project Tasks and Findings
***Phase 1 Environmental Site Assessment* (URS, 2014a)**	
Work Objectives	To undertake a desktop review of available information for the site including a site walkover reconnaissance and a search of historical records to provide an overall indication of the potential for contamination to be present on the site.
Scope of Works	• A review of current and historical Certificates of Title to provide a history of ownership and land use; • Review of the following – Aerial photographs – selected historical aerial photographs of the site available for review from the Department of Lands to provide evidence of the history of development of the site and indications of potential sources of contamination; – Details of groundwater bores registered on the groundwater bore database maintained by the New South Wales (NSW) Natural Resource Atlas (www.nratlas.nsw.gov.au) and located within 500 m of the site; – Review of topographical, geological and soil maps of the areas; and – Search of the database managed by the NSW Environmental Protection Authority for information on notices issued under the Contaminated Land Management Act, 1997. • Review of available site records; • Site inspection – to provide further information, via visual inspection, of potential sources and areas of significant environmental liability..

Assessment Details	**Project Tasks and Findings**
Conclusions and Recommendations	Based on the limited site history investigation URS made the following conclusions: • Based on the historic operations on the site, the following activities may have resulted in soil and/or groundwater contamination: – Brick making- use of glazes in kilns containing heavy metals including lead, – Former vehicle refuelling area – potential spills and leaks associated with three former USTs; – Motor vehicle maintenance: spills and leaks of fuels and oils from vehicles and machinery (including possible winch or hydraulic lift); – Demolition of possible residential structure (1970 0 1994): potential burial of demolition waste, including asbestos on site; – Two electrical substations / transformers are present on the site, which may potentially contain polychlorinated biphenyl (PCB) containing transformer oils; – Servicing of firefighting equipment – including carbon dioxide and dry powder; • Historic operations at the site included a refuelling area for vehicles. Infrastructure from this refuelling area has been excavated and removed from the site in 2005 and the resultant tank pit was validated and reinstated in accordance with the NSW EPA guidelines; • Anecdotal evidence suggested that no fire extinguishers containing aqueous film forming foam (AFFF) were used on the site; and • There was potential for some filling material to be present beneath the concrete paving and building floors on the site, however 'cut-and-fill' civil works during establishment of the site are considered unlikely to have resulted in significant volumes of imported fill material to be present at the site.
Tank Removal Validation Assessment **(URS, 2014b)**	
Work Objectives	URS were engaged to undertake decommissioning and removal of three underground storage tanks (USTs) and associated infrastructure at the Chubb facility located at 149-155 Milton Street, Ashfield NSW.
Scope of Works	The scope of works involved the following: – Attendance to the site during excavation and removal of tanks and infrastructure; – Sampling of the soils within the resultant excavation pit; – Sampling of the excavated tank backfill sands forming the stockpile; – Sampling of imported materials; – Reinstatement of excavation with excavated sandstone imported virgin excavated natural material (VENM); and – Preparation of a detailed report outlining the findings of the UST removal project.

Assessment Details	Project Tasks and Findings
Conclusions and Recommendations	• Three USTs and associated pipework were excavated and removed from the site. These included Tank 1 '(15,000 L UST), Tank 2 (25, 000 L UST) and Tanks 3 (25,000 L UST) and associated pipework. All tanks and pipework were noted to be in good condition; • All excavated soil was stockpiled on-site and sampled to assess the potential for re-instatement back into the tank pit; • All soil samples collected and analysed from the UST excavation has concentrations of chemicals of potential concern below the adopted investigation levels. The samples were collected from both the base and walls of the tank pit excavation at depths between one and three meters below ground surface; • Stockpiled materials from the tank pit recorded hydrocarbon odours and PID readings at maximum concentrations of 230 parts per million; • All soil samples collected and analysed from the stockpile has concentrations of chemicals of potential concern below the adopted investigation levels. The stockpile material was subsequently re-instated back into the tank pit; • Approximately 85 m^3 of imported fill material (crushed sandstone) was transported to site and reinstated in the former tank pit. Sampling analytical results from imported fill material had concentrations of potential concern below the site investigation levels and or laboratory practical quantitation limits; and • The above sampling program indicates that the tank pit has been validated in a manner consistent with the relevant guidelines.

3.2 SUMMARY OF CONTAMINATION

The following potential sources of contamination were identified at the site:

- Imported filling of unknown origin distributed across the site;
- Impacts from previous commercial / industrial land uses, including brick making, vehicle refuelling, motor vehicle maintenance and servicing of firefighting equipment;
- Potential for hazardous buildings to be present on site, including from the demolition of former buildings; and
- Potential localised impacts from two electrical sub-stations located on the site.

In addition, EI consider a potential source of contamination at the site to be the potential for migration of landfill gas from the adjoining former landfill located immediately south west of the site. Landfill gas presents explosive and/or asphyxiation hazards, particularly from methane gas migration.

4. CONCEPTUAL SITE MODEL

In accordance with NEPM (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collection for the site, EI developed a preliminary conceptual site model (CSM) assessing plausible pollutant linkages between potential contamination sources, migration pathways and receptors. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify data gaps in the existing site characterisation.

4.1 CHEMICAL HAZARDS AND CONTAMINATION SOURCES

On the basis of site history and search findings (described in **Section 5**) EI consider potential chemical hazards and onsite contamination sources to be as follows:

- Imported fill soils of unknown origin distributed across the site;
- Impacts from previous commercial / industrial manufacturing activities at the site including brick making, vehicle refuelling, motor vehicle maintenance and servicing of firefighting equipment;
- Painted surfaces in relation to the structures (buildings) that are currently present on the site;
- Hazardous materials, including potential asbestos-containing materials (ACM) from building products and potential buried building materials from demolition;
- Potential localised impacts from two electrical substations located on the site;
- Potential migration of hazardous landfill gas to the site from the adjacent former landfill, currently identified as the Wagener Oval;
- Deeper, natural soils containing residual impacts, representing potential secondary sources of contamination; and
- The former onsite presence of underground petroleum storage systems (UPSS).

4.2 CHEMICALS OF CONCERN

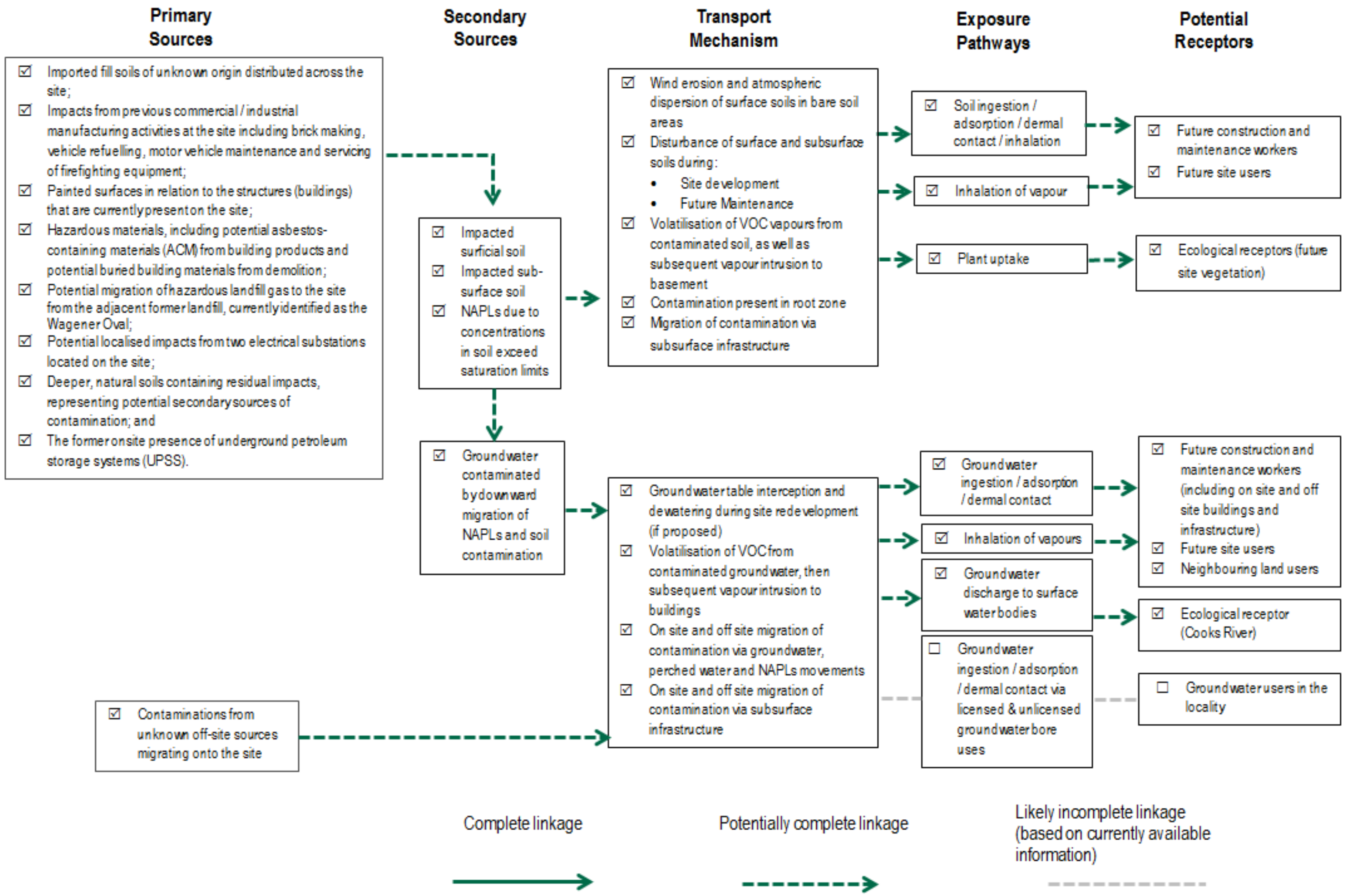
Based on the findings of the site contamination appraisal the chemicals of concern (COC) at the site are considered to be:

- Soil – heavy metals (HMs), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), monocyclic aromatic hydrocarbon compounds - *benzene, toluene, ethylbenzene and xylenes* (BTEX), organochlorine and organophosphate pesticides (OCP/ OPP), polychlorinated biphenyls (PCB) and asbestos.
- Groundwater – HMs, TRH, BTEX, PAH and volatile organic compounds (VOC), including chlorinated VOC (VOCC) such as trichloroethylene (TCE).;
- Air Quality – Landfill gases including Methane (CH_4), Carbon Dioxide (CO_2), Carbon Monoxide (CO) and Hydrogen Sulfide (H_2S).

4.3 POTENTIAL SOURCES, EXPOSURE PATHWAYS AND RECEPTORS

Potential contamination sources, exposure pathways and human and environmental receptors that were considered relevant for this assessment are summarised along with a qualitative assessment of the potential risks posed by complete exposure pathways in **Table 4-1**.

Table 4-1 Preliminary Conceptual Site Model



Preliminary Conceptual Site Model – Pre Fieldwork

Source: based on NEPM schedule B4 HRA Methodology

4.4 DATA GAPS

Based on information from the site walkover inspection and site history review, EI considered a programme of intrusive investigation was warranted to conduct targeted sampling at locations of known, potential sources of contamination (as listed in **Section 5.1**), with systematic sampling coverage in site areas where operational site history was not documented.

5. SAMPLING, ANALYTICAL AND QUALITY PLAN (SAQP)

The SAQP plays a crucial role in ensuring that the data collected as part of this, and ongoing environmental works carried out at the site are representative, and provide a robust basis for site assessment decisions. This SAQP includes the following:

- Data quality objectives, including a summary of the objectives of the ESA;
- Investigation methodology including media to be sampled, details of analytes and parameters to be monitored and a description of intended sampling points;
- Sampling methods and procedures;
- Field screening methods;
- Analysis Methods;
- Sample handling, preservation and storage; and
- Analytical QA/QC.

5.1 DATA QUALITY OBJECTIVES (DQO)

In accordance with the USEPA (2006) *Data Quality Assessment* and the DEC (2006) *Guidelines for the NSW Site Auditor Scheme*, the process of developing Data Quality Objectives (DQO) was used by the EI assessment team to determine the appropriate level of data quality needed for the specific data requirements of the project. The DQO process that was applied for this assessment is documented in **Table 5-1**.

Table 5-1 Summary of Project Data Quality Objectives

DQO Steps (NSW DEC, 2006)	US EPA (2006) (modified)	Details	Comments (changes during investigation)
1. State the Problem Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem; develop a conceptual site model	Give a concise description of the problem Develop a conceptual model of the environmental hazard to be investigated. Identify resources available.	• The site is to be redeveloped for high-density residential housing, with accessible soil areas. • Historical information and site inspection identified the potential for contamination to be present in site soil and/or groundwater, contributed by various potential sources listed in **Section 4.1**. Based on the site history information collected, a preliminary conceptual site model of the site has been developed, and is present in **Section 4**. • The investigation sampling must provide supportive information on the environmental conditions of the site to determine the site's suitability for the proposed development.	
2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that need to be made on the contamination problem and the new environmental data required to make them	Identify principal study question(s). Consider alternative outcomes or actions that may result from answering the question(s). For decision problems, develop decision statement(s), organise multiple decisions. For estimation problems, state what needs to be estimated and key assumptions.	Based on the objectives outlined in **Section 1.4,** the decisions that need to be made are: • Has the nature, extent and source of any soil, vapour and/or groundwater impacts onsite been defined? • What impact do the site specific, geologic and hydrogeological conditions have on the fate and transport of any impacts that may be identified? • Does the level of impact coupled with the fate and transport of identified contaminants represent an unacceptable risk to identified human and/or environmental receptors on or offsite? • Does the collected data provide sufficient information to allow the selection and design of an appropriate remedial strategy, if necessary?	

DQO Steps (NSW DEC, 2006)	US EPA (2006) (modified)	Details	Comments (changes during investigation)
3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision and specify which inputs require new environmental measurements	Identify types and sources of information needed to resolve decisions or produce estimates. Identify the basis of information that will guide or support choices to be made in later steps of the DQO Process. Select appropriate sampling and analysis methods for generating the information.	Inputs to the decision making process include: • Site history information from the previous URS (2014) investigation; • Areas of concern identified by URS (2014) and during the site inspection prior to intrusive investigations; • National and NSW EPA guidelines under the NSW Contaminated Land Management Act 1997; • Investigation sampling to verify the presence of onsite contamination and to evaluate the potential risks to sensitive receptors; • Laboratory analysis of selected soil and groundwater samples will comprise contaminants of concern presented in **Section 4.2**; and At the end of the assessment, a decision must be made regarding whether the soils and groundwater are suitable for the proposed development, or if additional investigation or remedial works are required to make the site suitable.	An additional two soil boreholes were drilled. Boreholes BH25, BH27 and BH28 did not achieve the target depth of natural soils, due to hand auger refusal on impenetrable fill material.
4. Define the Boundaries of the Study Specify the spatial and temporal aspects of the environmental media that the data must represent to support decision	Define the target land-use and receptors of interest and its relevant spatial boundaries. Define what constitutes a sampling unit. Specify temporal boundaries and other practical constraints associated with sample/data collection. Specify the smallest unit on which decisions or estimates will be made.	• Lateral – The investigation will be conducted within the cadastral site boundaries; which defines the extent of the investigation • Vertical – From existing ground surface, underlying fill and natural soil horizons, to underlying groundwater water-bearing zone(s); and Temporal – The results will be valid on the day samples are collected and will remain valid as long as no changes occur on site or contamination (if present) does not migrate on site or on to the site from off-site sources.	
5. Develop the Analytic Approach (Develop a decision rule) To define the parameter of interest, specify the action level, and integrate previous DQO outputs into a single statement that describes a logical basis for choosing from alternative actions	Specify appropriate land-use parameters for making decisions or estimates. For decision problems, choose a workable Action Level and generate an "If then else" decision rule which involves it. For estimation problems, specify the methodology and the estimation procedure.	The decision rules for the investigation were: • If the concentrations of contaminants in the soils data exceed the land use criteria; then assess the need to further investigate the extent of impacts onsite, and • Decision criteria for QA/QC measures are defined by the Data Quality Indicators (DQI) in **Table 5-2**.	

DQO Steps (NSW DEC, 2006)	US EPA (2006) (modified)	Details	Comments (changes during investigation)
6. Specify Performance or Acceptance Criteria (Specify limits on decision errors) Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data	For decision problems, specify the decision rule as a statistical hypothesis test, examine consequences of making incorrect decisions from the test, and place acceptable limits on the likelihood of making decision errors. For estimation problems, specify acceptable limits on estimation uncertainty.	Specific limits for this project are to be in accordance with the National and NSW EPA guidance, and appropriate indicators of data quality and standard procedures for field sampling and handling. This should include the following points to quantify tolerable limits: • The null hypothesis for the investigation is that: – The 95% Upper Confidence Limits (UCL) of the mean for contaminants of concern exceed residential (with accessible soil) land use criteria across the site. • Sampling on a 20.5 m grid will allow detection of a circular hotspot with a nominal diameter of 24 m with 95% certainty; • The acceptance of the site will be based on the probability that – The 95% UCL of the mean of the data will satisfy the given site criteria. Therefore a limit on the decision error will be 5% that a conclusive statement may be incorrect; and – The standard deviation of the results is less than 50% of the relevant remediation acceptance criterion; and – No single results exceeds the remediation acceptance criteria by 250% or more; and • Soil concentrations for chemicals of concern that are below investigation criteria made or approved by the NSW EPA will be treated as acceptable and indicative of suitability for the proposed land use(s); and • If contaminant concentrations in groundwater exceed the adopted criteria, further investigation will be considered prudent. If no contamination is detected in groundwater, further action will not be warranted.	

DQO Steps (NSW DEC, 2006)	US EPA (2006) (modified)	Details	Comments (changes during investigation)
7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data) Identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs	Compile all data and outputs generated in Steps 1 to 6. Use this information to identify alternative sampling designs that fit your intended use Select and document a design that will yield data to best achieve your data quality.	• The site area (16,450 m^2) required 26 sampling points according to EPA (1995); • Soil sampling locations were set using a systematic sampling pattern across the accessible areas of the site; • An upper soil profile sample (or soil extracted immediately beneath the concrete hardstand / pavement) will be collected at each borehole location and tested for chemicals of concern, to assess the conditions of fill layer, and impacts from activities above ground. Further sampling would also be carried out at deeper soil layers. These samples would be selected for testing based on field observations (including visual and olfactory evidence, as well as soil vapour screening in headspace samples) whilst giving consideration to characterise the subsurface stratigraphy; • Five groundwater monitoring wells were proposed to characterise groundwater quality within the site; and • Written instructions will be issued to guide field personnel in the required fieldwork activities.	

5.2 DATA QUALITY INDICATORS

To ensure that the investigation data collected was of an acceptable quality, the investigation data set was assessed against the data quality indicators (DQI) outlined in **Table 5-2**, which related to both field and laboratory-based procedures. The assessment of data quality is discussed in **Section 7**.

Table 5-2 Data Quality Indicators

Data Quality Objective	Data Quality Indicator	Acceptable Range
Accuracy	Field – Trip blank (laboratory prepared) Laboratory – Laboratory control spike and matrix spike	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Precision	Field – Blind replicate and spilt duplicate Laboratory – Laboratory duplicate and matrix spike duplicate	< 30 % relative percentage difference (RPD [%]) Prescribed by the laboratories
Representativeness	Field – Trip blank (laboratory prepared) Laboratory – Method blank	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Completeness	Completion (%)	-

6. ASSESSMENT METHODOLOGY

6.1 SAMPLING RATIONALE

With reference to the preliminary CSM described in **Section 5**, soil and groundwater investigation works were planned in accordance with the following rationale:

- Sampling fill and natural soils from 28 test bore locations located systematically across the site using a grid-based sampling pattern and at targeted locations to assess for the presence of residual soil contamination. It should be noted that 26 boreholes were planned in accordance with the minimum sampling requirements, however an additional two boreholes were drilled;
- Sampling groundwater during a single groundwater monitoring event (GME) at five monitoring wells located close to the up gradient and down gradient site boundaries to assess for potential groundwater impacts; and
- Laboratory analysis of representative soil and groundwater samples for the identified chemicals of concern.

6.2 INVESTIGATION CONSTRAINTS

The number of test bores drilled and monitoring wells installed during the investigation phase achieved the planned investigation scope described in **Section 7.**1. However, the however, the following investigation constraints were encountered:

- Limited access to internal areas of the buildings and therefore characterisation of the majority of material within the existing building footprints could not be achieved;
- Limited head-clearance for the mechanical drilling rig; and
- Buried impenetrable materials (buried deep slabs and rock boulders), which caused auger refusal in boreholes BH25, BH27 and BH28.

6.3 ASSESSMENT CRITERIA

The assessment criteria proposed for this project are outlined in **Table 6-1**. These were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the exposure scenario that is expected for various parts of the site, the likely exposure pathways and the identified potential receptors.

Table 6-1 Adopted Investigation Levels for Soil and Groundwater

Environmental Media	Adopted Guidelines	Rationale
Soil	NEPM, 2013 Soil HILs, EILs, HSLs, ESLs & Management Limits for TPHs	**Soil Health-based Investigation Levels (HILs)** All samples to be assessed against the NEPM 2013 HIL-B thresholds for residential sites with limited access to soils **Ecological Investigation Levels (EILs)** Soil samples from boreholes BH1M, BH3M, BH4M, BH5, BH6, BH7M, BH11, BH15, BH16, BH17, BH21, BH22, BH24, BH27, BH28 and BH29 would also be assessed against the NEPM 2013 EILs for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene, which have been derived for protection of terrestrial ecosystems. **Soil Health-based Screening Levels (HSLs)** The NEPM 2013 Soil HSL-A&B thresholds for low-high density residential sites for vapour intrusion would be applied to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX & naphthalene. Soils asbestos results to be assessed against the NEPM 2013 Soil HSL thresholds for "all forms of asbestos". **Ecological Screening Levels (ESLs)** Soil samples from boreholes BH1M, BH3M, BH4M, BH5, BH6, BH7M, BH11, BH15, BH16, BH17, BH21, BH22, BH24, BH27, BH28 and BH29 to be assessed against the NEPM 2013 ESLs for selected petroleum hydrocarbons & TRH fractions for protection of terrestrial ecosystems. **Management Limits for Petroleum Hydrocarbons** Should the ESLs and HSLs be exceeded for petroleum hydrocarbons, soil samples from all boreholes would also assessed against the NEPM 2013 *Management Limits* for the TRH fractions F1 – F4 to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards & adverse effects on buried infrastructure. **Ground Gas** Hazardous ground gases associated with Landfills include methane, carbon dioxide, carbon monoxide and hydrogen sulfide will be managed through the NSW Environmental Protection Authority (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*, November, 2012.

Environmental Media	Adopted Guidelines	Rationale
Groundwater	NEPM, 2013 GILs for Marine Waters	**Groundwater Investigation Levels (GILs) for Marine Water** NEPM 2013 provides GILs for typical, slightly-moderately disturbed aquatic ecosystems, which are based on the ANZECC & ARMCANZ 2000 Trigger Values (TVs) for the 95% level of protection of aquatic ecosystems; however, the 99% TVs were applied for the bio-accumulative metals *cadmium* and *mercury*. The marine criteria were considered relevant as the closest, potential surface water receptor was Cooks River, located 1.21 km south west of the site and understood to be tidally influenced.
	NEPM, 2013 Groundwater HSLs for Vapour Intrusion	**Health-based Screening Levels (HSLs)** The NEPM 2013 groundwater HSLs for vapour intrusion were used to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts. The *HSL A* and *HSL B* thresholds for low and medium-density residential sites were applied for groundwater.
	NEPM, 2013 GILs for Drinking purposes	**Drinking Water GILs** The NEPM (2013) GILs for drinking water quality were applied for specific parameters, for which freshwater/marine GILs were not provided. These were based on the Australian Drinking Water Guidelines (Ref. NHMRC, 2011).

Table 7-2 Generic and Derived Ecological Investigation Levels

Metal	Assumed Values [1]	EIL (mg/kg) [2]
Arsenic	Generic EIL	100
Chromium (III)	ABC - 15 mg/kg (assumes an old NSW high traffic suburb) ACL - 190 mg/kg (assumes clay content <1 %)	205
Copper	ABC - 30 mg/kg (assumes an old NSW high traffic suburb) ACL - 60 mg/kg (assumes pH 4.5)	90
DDT	Generic EIL	180
Lead	ABC - 160 mg/kg (assumes an old NSW high traffic suburb) ACL – 1,100 mg/kg	1,260
Naphthalene	Generic EIL	170
Nickel	ABC - 5 mg/kg (assumes an old NSW high traffic suburb) ACL - 30 mg/kg (assumes CEC 5)	35
Zinc	ABC - 120 mg/kg (assumes an old NSW high traffic suburb) ACL - 70 mg/kg (assumes pH 4 & CEC 5)	190

Notes:
ACL - added contaminant limit; ACLs for Urban residential and public open space were used for this project
ABC - ambient background concentration
The most stringent ACL values were adopted for Chromium (III), Copper, Lead, Nickel and Zinc, as site soil physiochemical properties (i.e. pH, CEC and clay content) were not tested (Ref. NEPM 2013 Schedule B1, Tables 1B(1), 1B(2), 1B(3) and 1B(4) *Soil-specific added contaminant limits*)
[1] Assumed values are based on NEPM 2013 Schedule B5(c) *Guideline on Ecological Investigation Levels for Arsenic, Chromium (III), Copper, DDT, Lead, Naphthalene, Nickel & Zinc*

[2] EIL = ABC + ACL, unless Generic EIL is applicable

For the purposes of this investigation, the adopted soil assessment criteria are referred to as the Soil Investigation Levels (SILs) and the adopted groundwater assessment criteria are referred to as the Groundwater Investigation Levels (GILs). SILs and GILs are presented alongside the analytical results in the corresponding summary tables, which are discussed in **Section 8**.

6.4 SOIL INVESTIGATIONS

The soil investigations conducted at the site are described in **Table 6-3**. Test bore locations are illustrated in **Figure 2**.

Table 6-3 Summary of Soil Investigation Methodology

Activity/Item	Details
Fieldwork	The site investigation was carried out on the following dates: • Drilling of boreholes BH1M on 20 January, 2016; • Drilling of borehole BH4M on 18 January, 2016; • Drilling of boreholes BH7M, BH3M and BH6 on 19 January, 2016; • Drilling of boreholes BH5, BH9 – BH29 on 20 January, 2016; and • Drilling of borehole BH8M on 21 January, 2016. Boreholes BH1M, BH3M, BH4M, BH7M and BH8M were converted to groundwater monitoring wells. All of the planned test bores achieved the target depth of natural soils, with the exception of boreholes BH25, BH27 and BH18 due to hand auger refusal in impenetrable fill material.

Activity/Item	Details
Drilling Method & Investigation Depth	Boreholes BH1M, BH2, BH3, BH4M, BH5, BH6, BH7M and BH8M were drilled by Chadwick Geotechnics Pty Ltd using a Hanjin DB8 (model), mechanical, track-mounted, drilling rig using 200 mm diameter, solid flight augers. It should be noted that these boreholes were also drilled for Geotechnical investigation purposes (refer. E22851 GA). Boreholes BH9 – BH24, BH26, and BH28 were drilled by HartGeo Pty Ltd using a mechanical, track-mounted, drilling rig using 200 mm diameter, solid flight augers. Boreholes BH25, BH27 and BH29 were drilled by hand auger due to drilling rig height and access restrictions to onsite buildings. Final bore depths were: • 8.4 m BGL for BH1M, • 13.18 m BGL for BH3M; • 18.0 m BGL for BH4M; • 16.75 m BGL for BH7M; • 12.0 m BGL for BH8M; • 4.1 m BGL for BH9; • 2.4 m BGL for BH10; • 2.3 m BGL for BH11; • 3.0 m BGL for BH12; • 2.0 m BGL for BH13, BH14, BH15, BH16, BH17, BH21, BH22, BH24 and BH29 • 1.6 m BGL for BH18; • 3.1 m BGL for BH19; • 2.5 m BGL for BH20; • 4.0 m BGL for BH23; • 0.5 m BGL for BH25; • 1.5 m BGL for BH26; • 0.6 m BGL for BH27; and • 0.7 m BGL for BH28.
Soil Logging	Drilled soils were classified in the field with respect to lithological characteristics and evaluated on a qualitative basis for odour and visual signs of contamination. Soil classifications and descriptions were based on Unified Soil Classification System (USCS) and Australian Standard (AS) 4482.1-2005. Bore logs are presented in **Appendix C**.
Field Observations (including visual and olfactory signs of potential contamination)	A summary of field observations is provided, as follows: • fibre cement sheet fragments were not observed in any drilling cuttings; • no signs of ash or charcoal materials were detected in any of the drilled boreholes; and • No visual signs of contamination were observed and no suspicious odours were detected during any stage of the field investigation programme.
Soil Sampling	• Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars. • Blind field duplicates was separated from the primary samples and placed into glass jars. • A small amount of duplicate was collected from each soil samples and placed into zip-lock bag for Photo-ionisation Detector (PID) screening. • A small amount of duplicate was separated from all fill samples and placed into a zip-lock bag for asbestos analysis.

Activity/Item	Details
Decontamination Procedures	*Drilling Equipment* - The drilling rods were decontaminated between sampling locations with potable water until the augers were free of all residual materials. *Sampling Equipment* – Samples were collected via hand with a new pair of dedicated nitrile gloves for each sample and placed into laboratory prepared and pre-labelled sample jars.
Sample Preservation	Samples were stored in a refrigerated (ice-filled) chest, whilst on-site and in transit to the laboratory. All samples were submitted and analysed within the required holding period, as documented in laboratory reports discussed in a later section.
Management of Soil Cuttings	Soil cuttings were used as backfill for completed boreholes.
Quality Control & Laboratory Analysis	A number of soil samples were submitted for analysis of previously-identified COPC by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes, as discussed in **Section 9**.
Soil Vapour Screening	Screening for potential VOCs in collected soil samples was conducted using a Photo-ionisation Detector (PID), as volatile odours were not detected at any sampling location during the course of the fieldwork.

6.5 GROUNDWATER INVESTIGATIONS

The groundwater investigations conducted at the site are described in **Table 6-4**. Monitoring well locations are illustrated in **Figure 2**.

Table 6-4 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Groundwater monitoring wells were installed and developed on following dates: • 18 January 2016 for BH4M; • 19 January 2016 for BH3M and BH7M; • 20 January 2016 for BH1M; • 21 January 2016 for BH8M. Whereas, water level gauging, well purging, field testing and groundwater sampling was conducted on 28 January, 2016.
Well Construction	Test bores were converted to groundwater monitoring wells as follows: • one, 8.4 m deep, onsite, up-gradient well identified as BH1M; • two, 12 m deep, onsite, up-gradient wells identified as BH3M and BH8M; • one, 9.0 m deep, onsite, down-gradient well identified as BH7M and • one, 12 m deep, offsite, up-gradient well identified as BH4M. Monitoring wells BH3M, BH4M, BH7M and BH8M drilled by Chadwick Geotechnics Pty Ltd using a track-mounted, Hanjin DB8 (model), mechanical, track-mounted, drilling rig using 200 mm diameter, solid flight augers. Monitoring well BH1M was installed by HartGeo Pty Ltd using a mechanical, track-mounted, drilling rig using 200 mm diameter, solid flight augers. Well construction details are tabulated in **Table 9-2** and documented in the bore logs presented in **Appendix C**. Both wells were installed to screen the sand aquifer within the interval 3.0 to 6.0 m bgl and were seated in silty sandy soils.
Well Construction (continued)	Well construction was in general accordance with the standards described in NUDLC, 2012 and involved the following: • 50 mm, Class 18 uPVC, threaded, machine-slotted screen and casing, with slotted intervals in shallow wells set to screen to at least 500 mm above the standing water level to allow sampling of phase-separated hydrocarbon product, if present; • base and top of each well was sealed with a uPVC cap; • annular, graded sand filter was used to approximately 300mm above top of screen interval; • granular bentonite was applied above annular filter to seal the screened interval; • drill cuttings were used to backfill the bore annulus to just below ground level; and • surface completion comprised a steel road box cover set in neat cement and finished flush with the concrete slab level.
Well Development	Well development was conducted for each well directly following installation. This involved agitation within the full length of the water column using a dedicated, HDPE, disposable bailer, followed by removal of water and accumulated sediment using a 12V, HDPE submersible bore pump (Proactive Environmental, model Super Twister). Pumping was continued until no further reduction in suspended sediment was observed (i.e. after removal of several well volumes).
Well Survey (Elevation and location)	Well elevations at ground level were extrapolated from the spot elevations marked on the survey plan provided by the client. Well elevations at ground level were extrapolated in metres relative to Australian Height Datum (m AHD).

Activity/Item	Details
Well Gauging & Groundwater Flow Direction	Monitoring wells were gauged for standing water level (SWL, depth to groundwater) prior to well purging at the commencement of the GME on 28 January 2016, all measured SWLs are shown in **Table 9-2**. A transparent HDPE bailer was used to visually assess for the presence PSH prior to the commencement of well purging at each well. PSH was not detected in any of the wells. Based on the reduced water levels (RWLs, i.e. SWLs corrected to AHD) calculated at each monitoring well (**Table 9-3**) the direction of groundwater flow in the shallow aquifer was inferred to be in a southwest direction. This is consistent with the general slope of the site and considering the nearest surface water body is the Cooks River which is located approximately 1.21 km south west of the site.
Well Purging, Field Testing & Groundwater Sampling	All groundwater monitoring wells were purged and sampled using low-flow/minimal drawdown sampling method with a MicroPurge kit (MP15) and a portable MicroPurge pump following well gauging. The MicroPurge system incorporates a low density poly-ethylene (LDPE) pump bladder, and a Teflon-lined LDPE sample delivery tube. The system used for this investigation employed pressurised carbon dioxide gas to regulate groundwater flow. Pump pressure and pumping cycles were adjusted accordingly to regulate extraction flow rate, and to avoid causing excessive drawdown of water level during the sampling process. Field measurement of water quality parameters was conducted continuously on purged groundwater with a water quality meter (Hanna Multi Parameter 9829) positioned within an open flow-through cell. Groundwater parameters tested in the field were Dissolved Oxygen (DO), Electrical Conductivity (EC), Redox, Temperature and pH. The measured parameters were recorded onto a field data sheet (**Appendix D**), along with the purged water volume at the time of measurement. Groundwater sampling was performed when three consecutive readings of groundwater parameter indicated stabilisation; as per the specified ranges detailed below: • Electrical Conductivity: ± 3% of the read value; • Redox: ± 20 mV; • DO: ± 20% of the read value; and • pH: ± 0.2 pH unit. Total water volume purged and stabilised groundwater parameters at each groundwater monitoring well are summarised in **Table 9-3**.
Decontamination Procedure	• All sample containers were supplied by the laboratory for the particular project and only opened once immediately prior to sampling. • While ice was used to keep the samples cool, all melt water was continuously drained from the Esky to prevent cross-contamination of samples. • The MicroPurge Pump, water level probe and water quality kit probes were washed in a solution of potable water and Decon 90 and then rinsed with potable water between measurements/wells.
Sample Preservation	Sample containers were supplied by the laboratory with the following preservatives: • one, 1 litre amber glass, acid-washed and solvent-rinsed bottle; • two, 40ml glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and • one, 250mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). Samples for metals analysis were field-filtered using 0.45 µm pore-size filters. All containers were filled with sample to the brim then capped and stored in ice-filled chests, until completion of the fieldwork and during sample transit to the laboratory.

Activity/Item	Details
Quality Control & Laboratory Analysis	All groundwater samples were submitted for analysis of previously-identified chemicals of concern by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes.
Sample Transport	After sampling, refrigerated sample chests were transported to SGS Australia Pty Ltd using strict Chain-of-Custody (COC) procedures. Inter-laboratory duplicate (ILD) samples were forwarded to Envirolab Services Pty Ltd (Envirolab) for QA/QC analysis. A Sample Receipt Advice (SRA) was provided by each laboratory to document sample condition upon receipt. Copies of SRA and COC certificates are presented in **Appendix E**.

7. DATA QUALITY ASSESSMENT

The assessment of data quality is defined as the scientific and statistical evaluation of environmental data to determine if these data meet the objectives of the project (Ref. USEPA 2006). Data quality assessment includes an evaluation of the compliance of the field sampling and laboratory analytical procedures and an assessment of the accuracy and precision of these data from the laboratory quality control measurements obtained.

The data quality assessment process for this assessment included a review of analytical procedures to confirm compliance with established laboratory protocols and an assessment of the accuracy and precision of analytical data from a range of quality control measurements. The QC measures generated from the field sampling and analytical program were as follows:

- suitable records of fieldwork observations including borehole logs;
- relevant and appropriate sampling plan (density, type, and location);
- use of approved and appropriate sampling methods;
- preservation and storage of samples upon collection and during transport to the laboratory;
- complete field and analytical laboratory sample COC procedures and documentation;
- sample holding times within acceptable limits;
- use of appropriate analytical procedures and NATA-accredited laboratories; and
- required LOR (to allow for comparison with adopted IL);
- frequency of conducting quality control measurements;
- laboratory blanks;
- field duplicates;
- laboratory duplicates;
- matrix spike/matrix spike duplicates (MS/MSDs);
- surrogates (or System Monitoring Compounds);
- analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD); and
- checking for the occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements.

The findings of the data quality assessment in relation to the soil and groundwater investigations at the site are discussed in detail in **Appendix G**. QA/QC policies and DQOs are presented in **Appendix H**.

On the basis of the analytical data validation procedure employed the overall quality of the soil and groundwater analytical data produced for the site were considered to be of an acceptable standard for interpretive use.

8. RESULTS

8.1 SOIL INVESTIGATION RESULTS

8.1.1 Site Geology and Subsurface Conditions

The general site geology encountered during the drilling of the soil investigation boreholes, installation of monitoring wells may be described as a layer of anthropogenic filling overlying Residual Clays, with Ashfield Shale at depth. The geological information obtained during the investigation is summarised in **Table 8-1** and borehole logs from these works are presented in **Appendix C**.

Table 8-1 Generalised Subsurface Profile (m BGL)

Layer	Description	Depth to top & bottom of layer (m BGL)
		BH1M, BH3M, BH4M, BH7M, BH8M, BH9 – BH29
Fill	Silty Clay, high plasticity, dark grey-brown, with some fine sub-angular gravel, no odour.	0.0 – 2.3
	Silty SAND, fine / fine to medium grained, grey / brown / dark grey with some fine to coarse sub-angular to sub-rounded concrete and brick gravels, with clay (BH20).	0.2 – 1.8
	Silty Sandy CLAY, medium plasticity, brown, sand is fine grained, with some fine to medium sub-angular concrete gravel.	0.4 – 0.8 (BH3M)
	SANDSTONE; orange – brown, with fine to coarse sandstone gravel, well compacted, no odour, sub-angular bricks from 3.4 m.	0.1 – 3.9 (BH7M)
	Gravelly Sandy SILT; medium grained, dark brown, no odour.	0.4 – 0.5
	Gravelly Silty SAND; fine to medium grained, pink, no odour,	1.1 – 2.4 (BH23) 0.6 – 0.8 (BH15)
Residual Clay	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	0.2 – 1.6+ (BH18) 0.6 – 2.0+
Bedrock	Shale, extremely weathered, brown, no odour.	0.6 – 18+

Notes: + Termination depth of borehole

8.1.2 Field Observations and PID Results

Soil samples were obtained from the test bores at various depths ranging between 0.0 m to 18.0 m bgl. All examined soil samples were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, asbestos fragments, ash, charcoal) and the following observations were noted:

- No visual or olfactory evidence of hydrocarbon impacts were noted at any of the borehole locations investigated during this assessment;
- fibre cement sheet fragments were not observed in any drilling cuttings;
- no signs of ash or charcoal materials were detected in any of the drilled boreholes; and
- No visual signs of contamination were observed and no suspicious odours were detected during any stage of the field investigation programme.
- Potential for landfill gas to be present in sub-surface material located near the western boundary associated with the former landfill, currently the Wagener Oval.
- Elevated VOC concentrations ranging from 0.2 to 1262.6 parts per million (ppm) were detected in soil headspace samples BH22 – BH28, which were field-screened using a portable PID fitted with a 10.9 eV lamp. The PID results are shown in the borehole logs (**Appendix C**) and the samples showing higher PID values were therefore assigned for laboratory VOC and SVOC analysis. It should be noted that no PID readings were collected for samples in boreholes BH1M, BH3M– BH21 and BH29. In addition, monitoring of methane / landfill gas within the soils at the site was not carried out during the investigation.

8.2 GROUNDWATER INVESTIGATION RESULTS

8.2.1 Monitoring Well Construction

A total of five groundwater monitoring wells were installed across the site. Well construction details for the installed groundwater monitoring wells are summarised in **Table 8-2**.

Table 8-2 Monitoring Well Construction Details

Well ID	Bore Depth (m BGL)	RL (GL)	RL (TOC)	Screen Interval (m bgl)	Lithology Screened
BH1M	8.4	33.60	33.470	5.4 – 8.4	Shale
BH3M	12.0	40.50	40.490	9.0 –12.0	Shale
BH4M	12.0	36.70	36.615	9.0 – 12.0	Shale
BH7M	9.0	37.20	37.300	6.0 – 9.0	Shale
BH8M	12.0	40.40	40.285	9.0 – 12.0	Shale

Notes:
m bgl = metres below ground level.
RL = Reduced Level – Surveyed elevation in metres relative to Australian Height Datum (m AHD).
TOC = top of well casing
RL (TOC) = Surveyed elevation at TOC in m AHD.

8.2.2 Field Observations and Water Test Results

A single GME was conducted on all wells in 28 January 2016. On this date, standing water levels (SWLs) were measured within each well prior to well purging, the results of which were recorded with well purge volumes and field-based water test results. A summary of the recorded field data is presented in **Table 8-3** and copies of the completed Field Data Sheets are included in **Appendix D**.

Table 8-3 Groundwater Field Data (GME date 28 January, 2016)

Well ID	SWL (m BTOC)	RL (TOC)	WL† (m AHD)	Purge Volume (L)	DO (mg/L)	Field pH	Field EC (µS/cm)	Temp (°C)	Redox (mV)	Odours / Turbidity
BH1M	3.850	33.470	29.62	3.0	0.35	5.70	2478	23.59	72.5	None / low
BH3M	3.270	40.490	37.22	3.0	0.16	5.70	7375	23.36	97.9	None / low
BH4M	8.315	36.615	28.30	3.0	0.46	5.59	4264	22.98	77.9	None / high
BH7M	7.580	37.300	29.72	2.5	0.99	5.07	4072	24.81	109.9	Hydrocarbon odour / low
BH8M	1.77	40.285	38.52	3.0	0.38	6.16	5413	22.83	46.1	None / moderate

Notes:
GME – Groundwater monitoring event.
SWL – Standing Water Levels as measured from TOC (top of well casing) prior to groundwater sampling.
m BTOC – metres below top of well casing.
RL (TOC) – Reduced Level, elevation at TOC in metres relative to Australian Height Datum (m AHD).
† WL = Calculated groundwater level, in m AHD (calculated as RL – SWL) Note: these values were used for groundwater contouring analysis.
L – litres (referring to volume of water purged from the well prior to groundwater sample collection).
EC – groundwater electrical conductivity as measured onsite using portable EC meter.
µS/cm – micro Siemens per centimetre (EC units).
DO – Dissolved Oxygen in units of milligrams per litre (mg/L)
All groundwater parameters (pH, EC and DO) were tested on site.
* Well not found, presumed damaged.

With reference to **Table 8-3**, the field pH data indicated that the groundwater was slightly acidic (pH ranged from 5.70 to 6.16) with oxidising conditions present in all wells. Electrical Conductivity (EC) measurements were recorded in the range 2478 to 7375 µS/cm indicating that the groundwater was marginal to saline in terms of water salinity.

8.3 LABORATORY ANALYTICAL RESULTS

8.3.1 Soil Analytical Results

A summary of laboratory results showing test sample quantities, minimum/maximum analyte concentrations and samples found to exceed the SILs, is presented in **Table 8-4**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted soil criteria are presented in **Table T1** at the end of this report. Completed documentation used to track soil sample movements and laboratory receipt (i.e. COC and SRA forms) are provided in **Appendix E** and all laboratory analytical reports for tested soil samples are presented in **Appendix F**.

Table 8-4 Summary of Soil Analytical Results

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
Hydrocarbons				
41	F1 TRH	<25	<25	None
41	F2 TRH	<25	<25	None
41	F3 TRH	<90	760	None
41	F4 TRH	<120	150	None
41	Benzene	<01	0.2	None
41	Toluene	<0.1	0.2	None
41	Ethyl benzene	<0.1	<0.1	None
41	Total xylenes	<0.3	<0.3	None
PAHs				
28	Carcinogenic PAHs (as B(a)P TEQ)	<0.2	0.3	None
28	Benzo(a)pyrene	<0.1	0.2	None
28	Total PAHs	<0.8	1.9	None
Pesticides				
28	OCPs	ND	ND	None
28	OPPs	ND	ND	None
Heavy Metal				
41	Arsenic	<3	28	None
41	Cadmium	<0.3	0.6	None
41	Chromium (Total)	2.5	120	None
41	Copper	3.6	390	None
41	Lead	2	270	None
41	Mercury	<0.01	0.06	None

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
41	Nickel	0.01	100	Exceedances above the EIL criteria for samples BH3_0.2-0.3 (61 mg/kg), BH5_0.2-0.5 (60 mg/kg), BH6_0.2-0.3 (36 mg/kg), BH13_0.2-0.3 (100 mg/kg), BH15_0.2-0.3 (82 mg/kg), BH16_0.2-0.3 (79 mg/kg), BH17_0.2-0.3 (84 mg/kg), BH21_0.2-0.3 (50 mg/kg), BH24_0.2-0.3 (95 mg/kg) and BH27_0.2-0.3 (99 mg/kg).
41	Zinc	4.3	120	None
PCBs				
28	Total PCBs	ND	ND	None
Asbestos				
28	Asbestos	No asbestos detected	Asbestos detected	Asbestos detected in samples: BH4_0.4-0.5 (<0.01 % w/w); and BH19_0.2-0.3 (>0.01 % w/w).

8.3.2 Groundwater Analytical Results

A summary of laboratory results showing test sample quantities, minimum/maximum analyte concentrations and samples found to exceed the GILs, is presented in **Table 8-5**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted groundwater criteria are presented in **Table T2** at the end of this report. Completed documentation used to track groundwater sample movements and laboratory receipt (COC and SRA forms) are copied in **Appendix E**. Copies of the laboratory analytical reports are attached in **Appendix F**.

Table 8-5 Summary of Groundwater Analytical Results

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
Hydrocarbons				
5	F1 C_6–C_{10}	<50	<50	None
5	F2 C_{10}-C_{16}	<60	<60	None
5	F3 C_{16}-C_{34}	<500	<500	None
5	F4 C_{34}-C_{40}	<500	<500	None
5	Benzene	<0.5	<0.5	None
5	Toluene	<0.5	<0.5	None
5	Ethyl benzene	<0.5	<0.5	None
5	o-xylene	<0.5	<0.5	None
5	Total xylenes	<1	<1	None
PAHs				
5	Total PAHs	<1	<1	None
5	Benzo(a)pyrene	<0.1	<0.1	None
5	Naphthalene	<0.1	<0.1	None
Heavy Metal				
5	Arsenic	<1	2	None
5	Cadmium	<0.1	2.7	Exceedance of the GILs: BH3M (2.7 µg/L)
5	Chromium (Total)	<1	<1	None
5	Copper	4	13	Exceedance of the GILs: BH1M (7 µg/L), BH3M (5 µg/L), BH4M (13 µg/L), BH7M (10 µg/L) and BH8M (4 µg/L).
5	Lead	<1	<1	None
5	Mercury	<0.1	<0.1	None
5	Nickel	4	24	Exceedance of the GILs for BH3M (24 µg/L), and BH4M (12 µg/L).
5	Zinc	21	110	Exceedance of the GILs for BH1M (37 µg/L), BH3M (110 µg/L), BH4M (46 µg/L), BH7M (59µg/L) and BH8M (21 µg/L).
VOCs				
5	Chloroform	1.3	16	Exceedance above the USEPA Region 9 SSL for BH1M (7.6 µg/L), BH3M (13 µg/L) and BH7M (16 µg/L)
5	Bromodichloromethane (THM)	<0.5	3.7	Exceedance above the USEPA Region 9 SSL for BH3M (3.6 µg/L), BH4M (0.6 µg/L) and BH7M (3.7µg/L)
5	Dibromochloromethane (THM)	<0.5	0.7	Exceedance above the USEPA Region 9 SSL for BH3M (0.6µg/L) and BH7M (0.7 µg/L).

9. SITE CHARACTERISATION DISCUSSION

9.1 CONCEPTUAL SITE MODEL

On the basis of investigation findings the preliminary CSM discussed in **Section 5** was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential onsite and offsite receptors. Previously known data gaps, as outlined in **Section 5.4** have largely been addressed; however, the following remaining data gaps need to be addressed in subsequent investigation works:

- Additional soil investigations are required underneath the existing building footprints which were inaccessible, this can be completed after demolition works, to adequately characterise environmental conditions in the northwest part of the site;
- Potential for landfill gas to be present within sub-surface materials across the site, particularly within the western portion of the site which is immediately adjacent to the former landfill, currently used as the Wagener Oval.

9.2 ASBESTOS RISK

Asbestos was reported in fill material in samples BH4_0.2-0.3 and BH19_0.2-0.3. Fibrous asbestos was detected at both locations with 1-3 mm length fibre bundles found loose in sample BH4_0.2-0.3 and five, 2-6 mm length fibre bundles found loose in sample BH19_0.2-0.3. Vertical delineation was achieved for BH19, with no asbestos detected in the deeper natural soil sample BH19_1.7-1.8, indicating that the asbestos contamination is likely to be confined to the upper layer of fill material in that area. Vertical delineation could not be achieved in borehole BH4. Given the history of the site, the source of asbestos contamination within soil is likely to be associated with the previous demolition of site buildings.

As free asbestos fibres in soils have been identified, there is a potential risk of exposure to receptors should free fibres become airborne. EI recommend that further investigation of asbestos contamination identified at BH4M and BH19 is completed to further characterise and delineate the extent of asbestos for establishing the most suitable methodology for remediation.

9.3 HEAVY METALS IN SOIL

Heavy metal concentrations detected above the adopted ecological criteria for nickel were identified at the following locations:

- BH3_0.2-0.3 (61 mg/kg);
- BH5_0.2-0.5 (60 mg/kg);
- BH6_0.2-0.3 (36 mg/kg);
- BH13_0.2-0.3 (100 mg/kg);
- BH15_0.2-0.3 (82 mg/kg);
- BH16_0.2-0.3 (79 mg/kg);
- BH17_0.2-0.3 (84 mg/kg);

- BH21_0.2-0.3 (50 mg/kg);
- BH24_0.2-0.3 (95 mg/kg); and
- BH27_0.2-0.3 (99 mg/kg).

Vertical delineation was only achieved in borehole BH15, with the deeper natural sample (BH115_1.1-1.2) containing concentrations of nickel below the EIL criteria.

As these exceedances are relatively uniform across the site, it is likely that this is associated with widespread or regional soil conditions and is therefore not considered a cause for concern.

9.4 TRH, BTEX AND PAHS IN SOIL

No exceedances of TRH, BTEX or PAHs above the HIL-B or EIL criteria were detected in soil samples analysed during this investigation.

9.5 OCPS & OPPS IN SOIL

No exceedances of OCPs or OPPs above the HIL-B or EIL criteria were detected in soil samples analysed during this investigation.

9.6 HEAVY METALS AND TRH IN GROUNDWATER

The following elevated heavy metal concentrations were identified in the groundwater monitoring wells installed at the site:

- Exceedances of cadmium in BH3M (2.7 µg/L);
- Exceedances of copper in BH1M (7µg/L), BH3M (5 µg/L), BH4M (13 µg/L), BH7M (10 µg/L), and BH8M (4 µg/L);
- Exceedances of nickel in BH3M (24µg/L) and BH4M (12µg/L); and
- Exceedances of zinc in BH1M (37µg/L), BH3M (110 µg/L), BH4M (46 µg/L), BH7M (59 µg/L), and BH8M (21 µg/L).

The results of the groundwater investigation indicate that slightly elevated concentrations of nickel and zinc are present in groundwater in BH3M, compared to remaining monitoring wells (BH1M, BH4M, BH7M and BH8M). As the concentrations are fairly uniform across the site, it is likely that these exceedances are associated with a regional variability within the groundwater. EI therefore consider the risks associated with groundwater to be low.

No exceedances of TRH or BTEX were detected in groundwater monitoring wells sampled during this investigation.

9.7 VOCS IN GROUNDWATER

Trihalomethanes (THMs) including chloroform, bromodichloromethane and dibromochloromethane were reported in groundwater recovered from all monitoring wells. There were no exceedances of the default GIL (Australian Drinking

Water Guidelines); however the concentrations exceeded the USEPA Region 9 SSL criteria. The source of the THMs is likely to be associated with leaking reticulated water pipes on site. The risk is therefore considered to be low.

9.8 AESTHETICS

During this investigation, some bricks / sandstone blocks were observed within fill material at the site. Based on the site history, it is likely that materials associated with the demolition (bricks, sharps, general rubble etc.) of previous site buildings will be uncovered during development works and may present an aesthetic issue. EI note that, these would be removed during the remediation process and are not considered to have an impact on the site.

10. CONCLUSIONS

The property located at 165 Milton Street, Ashbury NSW was the subject of a Stage 2 Detailed Site Investigation that was conducted in order to assess the nature and degree of on-site contamination associated with current and former uses of the property. Based on the findings of this assessment it was concluded that:

- The site comprised an irregular shaped block, covering a total area of approximately 1.654 hectares. The site was bound by Milton Street (east), Wagener Oval (west), commercial / residential (south) and residential dwellings (north). At the time of investigation the site was occupied by five, one to three-storey, brick/brick and metal commercial buildings, with the remaining areas of the site covered by concrete or bitumen paved, open car-parking.
- A previous Stage 1, Environmental Site Assessment and a Tank Removal Validation Assessment were undertaken by URS in October, 2014 and identified the following:
  - The site history included various commercial / industrial uses including brick making, a former vehicle refuelling area, motor vehicle maintenance and servicing of firefighting equipment;
  - Potentially contaminating land use activities that were identified included:
    - Brick making- use of glazes in kilns containing heavy metals including lead,
    - Former vehicle refuelling area – potential spills and leaks associated with three former USTs;
    - Motor vehicle maintenance: spills and leaks of fuels and oils from vehicles and machinery (including possible winch or hydraulic lift);
    - Demolition of possible residential structure (1970 - 1994): potential burial of demolition waste, including asbestos on site;
    - Two electrical substations / transformers are present on the site, which may potentially contain polychlorinated biphenyl (PCB) containing transformer oils; and
    - Servicing of firefighting equipment – including carbon dioxide and dry powder.
  - The Tank Removal Validation Assessment confirmed that three USTs (15,000 L and two 25,000 L) and associated pipework were excavated and removed from the site, with the tank pit validated in a manner consistent with the relevant guidelines, and the tank pit was filled with certified, imported backfill material.
- EI consider a potential source of contamination at the site to be the potential for migration of landfill gas from the adjoining former landfill located immediately south west of the site.
- Soil sampling and analysis was conducted at twenty nine (29) targeted test bore locations down to a maximum depth of 18 m BGL. Sampling regime was considered to be appropriate for investigation purposes and comprised judgemental and systematic sampling patterns, with allowance for structural obstacles (e.g. building walls, underground and overhanging services and other physical obstructions in use by existing operating businesses);
- The sub-surface layers comprised of fill materials averaging 1-2 m thick and consisting of various constituents including bricks and gravels, overlying residual soils and weathered Ashfield shale at depth;

- Groundwater was encountered at depths ranging from 1.77 – 8.315 metres below ground level;
- Results of soil samples analysed identified fibrous asbestos in fill samples at boreholes BH4 and BH19 located within the south western and north eastern portions of the site, respectively. Vertical delineation was achieved in BH19, with the deeper natural soil sample being free of asbestos containing material, indicating that asbestos contamination is likely to be confined to the fill layer within the area.
- Exceedances of the heavy metal nickel, above the adopted EIL criteria was detected in multiple soil samples across the site, at locations outside of the proposed building footprint areas. However, the results are fairly uniform across the site, indicating a widespread / regional variation which is therefore not considered a cause for concern.
- There were no exceedances of PAHs, BTEX,OCPs, OPPs and PCBs in soil samples analysed during this investigation;
- Elevated concentrations of heavy metals were detected in all of the groundwater monitoring wells (BH1M, BH3M, BH4M, BH7M and BH8M), with the highest concentration detected within BH3M. However, the results are indicative of natural background concentrations, with the risk considered to be low;
- Concentrations of Trihalomethanes (THMs) including chloroform, bromodichloromethane and dibromochloromethane were reported in groundwater recovered from all of the groundwater monitoring wells. As the concentrations are relatively uniform across the site, it is considered likely that the source is from a leaking reticulated water pipe on site, and therefore the risk of the reported THMs is considered to be low.
- The Preliminary Conceptual Site Model (CSM) developed for this site included shallow impacted fill overlying residual clays and weathered shale bedrock, former UST's and potential landfill gas. It was concluded that the model remains valid for the proposed development. The following data gaps however remain and require closure by further investigations:
  - The vertical and lateral extent of asbestos contamination exceeding adopted human-health at boreholes BH4 and BH19 identified at the site;
  - Potential for landfill gas to be present within sub-surface materials across the site, particularly within the western portion of the site which is immediately adjacent to the former landfill, currently used as the Wagener Oval.
  - The quality of soils located in the footprint of the existing site buildings which were inaccessible during this investigation; and
  - Potential presence of hazardous materials present within the existing structure.

Based on the findings of this report and with consideration of the Statement of Limitations (**Section 12**), EI conclude that contamination was identified at the site during this DSI. Concentrations exceeding human health based SILs for asbestos were identified in surface fill material within the south western and north eastern areas of the site. In addition, there is potential landfill gas to be present within the sub-surface material at the site, sourced from the adjacent landfill, which will require further investigation.

While soil and groundwater contamination was identified at the site, EI concludes the site can be remediated in accordance with SEPP 55 to allow the site to be used for low density residential purposes, as outlined in the proposed development plans, subject to the implementation of the recommendations outline in **Section 11**.

11. RECOMMENDATIONS

Based on the findings of this investigation, the following recommendations are provided:

- Prior to site demolition, carry out a Hazardous Materials Survey on existing site structures to identify potentially hazardous building products that may be released to the environment during demolition;
- Preparation and implementation of a Remedial Action Plan (RAP), which should:
  - Outline the remediation requirements for soil identified and to close the existing data gaps identified during this DSI and other contamination that may be identified during data gap closure investigations;
  - Undertake a detailed ground gas investigation to assess the potential risks at the site in accordance with the *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (EPA , 2012);
  - Provide the requirements and procedure for waste classification assessment, in order to enable classification of site soils to be excavated and disposed off-site, in accordance with the *Waste Classification Guidelines* (EPA, 2014); and
  - Provide a SAQP for the validation of remediation activities performed on-site.
- Undertake supplementary investigations, and subsequent remediation and validation works for the site, as outlined in the RAP. EI note that due to current site constrains, the additional investigations and remediation works may be conducted after site demolition when access to areas of environmental concern is made available; and
- Preparation of a validation report by a suitably qualified environmental consultant, certifying site suitability of soils and groundwater for the proposed land use.

12. STATEMENT OF LIMITATIONS

This report has been prepared for the exclusive use of [the client], who is the only intended beneficiary of EI's work. The scope of the investigations carried out for the purpose of this report is limited to those agreed with Ashbury FMBM Pty Ltd on 23 December 2015.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices and attachments.

The conclusions presented in this report are based on a limited investigation of conditions, with specific sampling locations chosen to be as representative as possible under the given circumstances.

EI's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

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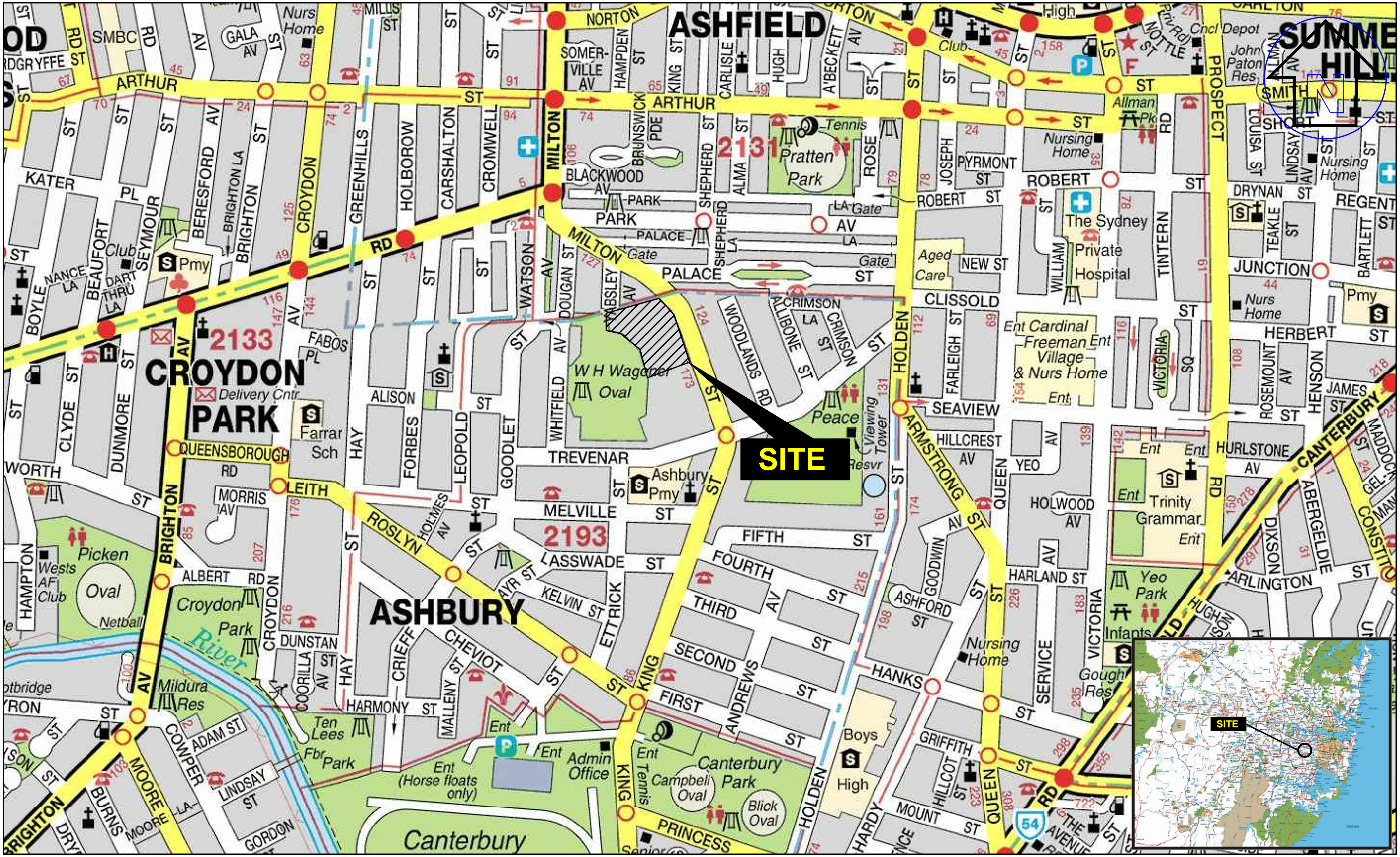
ABBREVIATIONS

ACM	Asbestos-containing materials
ASS	Acid sulfate soils
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
B(a)P	Benzo(a)Pyrene (a PAH compound)
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
COC	Chain of Custody
DEC	Department of Environment and Conservation, NSW (see OEH)
DECC	Department of Environment and Climate Change, NSW (see OEH)
DECCW	Department of Environment, Climate Change and Water, NSW (see OEH)
DA	Development Application
DO	Dissolved Oxygen
DP	Deposited Plan
EC	Electrical Conductivity
Eh	Redox potential
EPA	Environment Protection Authority
EMP	Environmental Management Plan
F1	TRH C_6 – C_{10} less the sum of BTEX concentrations (Ref. NEPM 2013, Schedule B1)
F2	TRH >C_{10} – C_{16} less the concentration of naphthalene (Ref. NEPM 2013, Schedule B1)
GIL	Groundwater Investigation Level
GME	Groundwater Monitoring Event
HIL	Health-based Investigation Level
HSL	Health-based Screening Level
km	Kilometres
LNAPL	Light, non-aqueous phase liquid (also referred to as PSH)
DNAPL	Dense, non-aqueous phase liquid
EIL	Ecological Investigation Level
ESL	Ecological Screening Level
LFG	Landfill Gas (mixture of methane, carbon dioxide, carbon monoxide, hydrogen sulfide and ammonia and other trace organic and inorganic compounds
m	Metres
m AHD	Metres Australian Height Datum
m BGL	Metres Below Ground Level
mg/m^3	Milligrams per cubic metre
mg/L	Milligrams per litre
µg/L	Micrograms per litre
mV	Millivolts
MW	Monitoring well
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council

NSW	New South Wales
OEH	Office of Environment and Heritage, NSW (formerly DEC, DECC, DECCW)
PAHs	Polycyclic Aromatic Hydrocarbons
pH	Measure of the acidity or basicity of an aqueous solution
PSH	Phase-separated hydrocarbons (also referred to as LNAPL)
PQL	Practical Quantitation Limit (limit of detection for respective laboratory instruments)
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
SRA	Sample receipt advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TDS	Total dissolved solids (a measure of water salinity)
TCLP	Toxicity Characteristics Leaching Procedure
TPH	Total Petroleum Hydrocarbons (superseded term equivalent to TRH)
TRH	Total Recoverable Hydrocarbons (non-specific analysis of organic compounds)
UCL	Upper Confidence Limit of the mean
USEPA	United States Environmental Protection Agency
UPSS	Underground Petroleum Storage System
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds (specific organic compounds which are volatile)
VOCCs	Volatile Organic Chlorinated Compounds (a sub-set of the VOC analysis suite)

FIGURES



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Date:	23-02-16
Approx Scale:	N.T.S

Ashbury FMBM Pty Ltd
Detailed Site Investigation
149-163 Milton Street, Ashbury, NSW
Site Location Plan

Figure:
1

Project: E22851 AA

Map Source: Six Maps, Imagery Dated 06/01/14

LEGEND

- ◐ Approximate Geotechnical Borehole Location
- ◐ Approximate Borehole Location
- ▼ Approximate Borehole / Monitoring Well Location
- — — Approximate site boundary
- ▨ Outside Proposed Building Footprint
- ▨ Approximate Former UST Location
- ▨ Approximate Electrical Substation Location

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Contamination | Remediation | Geotechnical

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Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	D.R.
Approved:	J.S.
Date:	23-02-16
Approx Scale:	1:750 @ A3 or as shown

Ashbury Developments Pty Ltd
Detailed Site Investigation
149-163 Milton Street, Ashbury NSW
Sampling Location Plan

Figure:
2

Project: E22851 AA

KEY

MW ID	Sample ID	BH ID
dd-mm-yy	Date	dd-mm-yy
	cPAH	4
0.2	Cadmium	
1.4	Copper	
3.4	Lead	
11	Nickel	
8	Zinc	

Notes:
All soil concentrations are in mg/kg. The table above shows exceedance criteria for HIL-B: *medium - high density residential with minimal accessible soils* .
🟨 = Exceedance of NEPM(2013) HIL-B threshold
🟩 = Exceedance of adopted ecological criteria

All groundwater concentrations are in µg/L. The table above shows exceedance criteria for GILs for Marine Water environments.
🟦 = Exceedance of NEPM(2013) GIL Criteria

Sample ID	BH16_0.2-0.23
Date	10-12-16
Nickel	79

Sample ID	BH27_0.2-0.3
Date	10-12-16
Nickel	99

Sample ID	BH17_0.2-0.23
Date	10-12-16
Nickel	84

BH3M	Sample ID	BH3)0.2-0.3
29-01-16	Date	10-12-15
2.7	Cadmium	
5	Copper	
24	Nickel	61
110	Zinc	
13	Chloroform	

Sample ID	BH19_0.2-0.23
Date	10-12-16
Asbestos	Yes

Sample ID	BH1M
Date	28-01-16
Copper	7
Zinc	37

Sample ID	BH24_0.2-0.3
Date	10-12-16
Nickel	95

Sample ID	BH15_0.2-0.23
Date	10-12-16
Nickel	82

Sample ID	BH13_0.2-0.23
Date	10-12-16
Nickel	100

BH4M	Sample ID	BH4_0.4-0.5
29-01-16	Date	10-12-16
13	Copper	
12	Nickel	
46	Zinc	
	Asbestos	Yes

Sample ID	BH7M
Date	29-01-16
Copper	10
Zinc	59
Chloroform	16

Sample ID	BH5_0.2-0.5
Date	10-12-16
Nickel	60

Sample ID	BH5_0.2-0.5
Date	10-12-16
Nickel	38

Sample ID	BH21_0.2-0.3
Date	10-12-16
Nickel	50

Sample ID	BH1M
Date	29-01-16
Copper	4
Zinc	21

Map Source: Six Maps, Imagery Dated 06/01/14

LEGEND

▨	Approximate Former UST Location
▨	Approximate Electrical Substation Location
◐	Approximate Geotechnical Borehole Location
◐	Approximate Borehole Location
▽	Approximate Borehole / Monitoring Well Location
– – –	Approximate site boundary

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Drawn:	D.R.
Approved:	J.S.
Date:	23-02-16
Approx Scale:	1:750 @ A3 or as shown

Ashbury Developments Pty Ltd
Detailed Site Investigation
149-163 Milton Street, Ashbury NSW
Soil and Groundwater Sample Exceedance Plan

Figure:
2

Project: E22851 AA

TABLES

Table T1 - Summary of Soil Analytical results

Sample ID	Sampling Date	Heavy Metals								PAHs				BTEX				TRHs				OCPs	OPPs	Total PCBs	Asbestos
		As	Cd	Cr[#]	Cu	Pb	Hg	Ni	Zn	Carcinogenic PAHs (as B(α)P TEQ)	Benzo(α)pyrene	Total PAHs	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1[2]	F2[3]	F3 $(>C_{16}-C_{34})$	F4 $(>C_{34}-C_{40})$				
BH1_0.1-0.2	10/12/2015	8	0.4	35	15	23	0.02	30	28	0.3	0.2	1.9	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH3_0.2-0.3		<3	0.3	73	24	9	0.01	61	56	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	210	150	ND	ND	ND	No
BH4_0.4-0.5		14	<0.3	5.7	13	8	<0.01	6.3	29	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	Yes
BH5_0.2-0.5		4	<0.3	70	19	8	<0.01	60	43	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH6_0.2-0.3		6	0.3	38	22	24	0.03	36	42	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH7_0.2-0.3		6	<0.3	24	17	15	0.03	21	76	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH7_1.0-1.1		10	0.4	20	14	21	0.04	12	69	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH7_3.0-3.1		6	0.4	28	13	11	0.01	19	100	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH8_0.2-0.3		13	0.5	38	14	23	0.03	20	44	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH9_0.2-0.3		13	<0.3	15	13	7	<0.01	14	24	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH9_1.7-1.8		17	<0.3	15	21	9	<0.01	17	44	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	200	<120	NA	NA	NA	NA
BH9_2.9-3.0		13	<0.3	27	23	13	0.01	25	44	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	94	<120	NA	NA	NA	NA
BH10_0.2-0.3		10	0.5	24	9.3	25	0.02	3.1	39	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH10_1.1-1.2		14	0.5	25	14	26	0.02	1.5	27	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH11_0.2-0.3		28	0.3	17	21	25	0.02	6	86	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	760	<120	ND	ND	ND	No
BH11_1.2-1.3		10	<0.3	11	7.3	12	<0.01	0.6	5.3	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH12_0.2-0.3		8	<0.3	8.9	6.9	9	<0.01	6.6	27	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH12_1.2-1.3		7	<0.3	12	16	14	0.01	2.5	23	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH13_0.2-0.3		3	0.5	120	32	10	0.01	100	71	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH14_0.2-0.3		9	<0.3	4.8	14	7	<0.01	6.7	77	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH15_0.2-0.3		15	0.5	86	32	29	0.06	82	120	0.3	0.2	1.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH15_1.1-1.2		8	0.3	29	7.8	22	0.01	3.6	8.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH16_0.2-0.3		4	0.4	79	33	29	0.05	79	73	<0.3	<0.1	<0.8	0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	120	<120	ND	ND	ND	No
BH17_0.2-0.3		<3	0.4	91	24	8	0.02	84	57	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH18_0.2-0.3		10	0.3	24	11	21	<0.01	8.2	100	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH19_0.2-0.3		<3	0.3	31	390	21	0.01	23	76	<0.3	<0.1	0.8	0.2	0.2	0.2	<0.1	<0.3	<25	<25	110	<120	ND	ND	ND	Yes
BH19_1.7-1.8		4	0.4	35	79	21	0.01	21	62	<0.3	<0.1	<0.8	0.1	0.1	0.2	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH20_0.2-0.3		<3	0.3	28	50	14	0.01	71	60	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH20_0.7-0.8		6	0.3	26	34	23	0.03	34	84	<0.3	0.1	1.2	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH21_0.2-0.3		5	0.4	53	23	14	0.02	50	61	<0.3	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH21_0.8-0.9		10	<0.3	13	10	13	<0.01	0.6	4.3	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH22_0.2-0.3		7	0.3	22	12	15	0.01	12	14	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH23_0.2-0.3		7	<0.3	57	42	10	0.03	31	38	<0.3	<0.1	1.4	0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH23_1.1-1.2		10	<0.3	2.5	3.6	2	<0.01	2.5	11	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH24_0.2-0.3		3	0.4	120	29	9	0.02	95	65	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH25_0.1-0.2		6	0.4	86	39	21	0.02	72	96	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH26_0.1-0.2		4	0.4	99	39	270	0.02	95	80	<0.3	<0.1	<0.8	<0.1	<0.1	0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH26_1.2-1.3		10	0.6	22	11	20	<0.01	3.9	8.8	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH27_0.2-0.3		3	0.5	120	33	12	0.01	99	80	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	260	150	ND	ND	ND	No
BH28_0.3-0.4		4	<0.3	17	32	17	0.01	8.3	35	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
BH29_0.2-0.3		<3	<0.3	5.1	57	29	0.01	7.8	71	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	ND	ND	ND	No
SILs																									
HIL B - Residential with minimal opportunities for soil access		500	150	500 Cr(VI)	30,000	1,200	120	1,200	60,000	4	1	400										NR	NR	1	
HSL A & HSL B - *Residential*		Source depths (0 m to <1 m. BGL)											3	0.5	160	55	40	45	110						
Soil texture classification –Sand [1]		Source depths (1 m to <2 m. BGL)											NL	0.5	220	NL	60	70	240						
EILs / ESLs - *urban residential and public open space* [1][4]		100	NR	205	90	1,100	NR	35	190	NR	0.7	NR	170	50	85	70	105	180*	120*	300	2800	180	NR	NR	NR
Management Limits – *Residential, parkland and public open space* Coarse grained soil texture[1]																		700	1000	2500	10000				
Asbestos contamination HSL – *Residential B* Bonded ACM (%w/w)																									0.04
Asbestos contamination HSL for																									0.001

Notes:	All results are recorded in mg/kg
	🟨 Highlighted values indicates concentration exceeds Human Helath Based Soil Criteria
	🟩 Highlighted values indicates concentration exceeds EIL / ESL.
HIL B	NEPC 1999 Amendment 2013 'HIL B" Health Based Investigation Levels applicable for residential exposure settings with minimal opportunities for soil access, including dwellings with fully and permanently paved yard space such as high rise buildings and apartments.
#	Thresholds are for Chromium VI.
NR	No current published criterion.
NL	Not Limiting' If the derived soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical
ND	'Not detected' i.e. all concentrations of the compounds within the analyte group were found to be below the laboratory limits of detection.
NT	'Not Tested' i.e. the sample as not analysed.
1	Coarse Grained soil values were applied, being the most conservative of the material types.

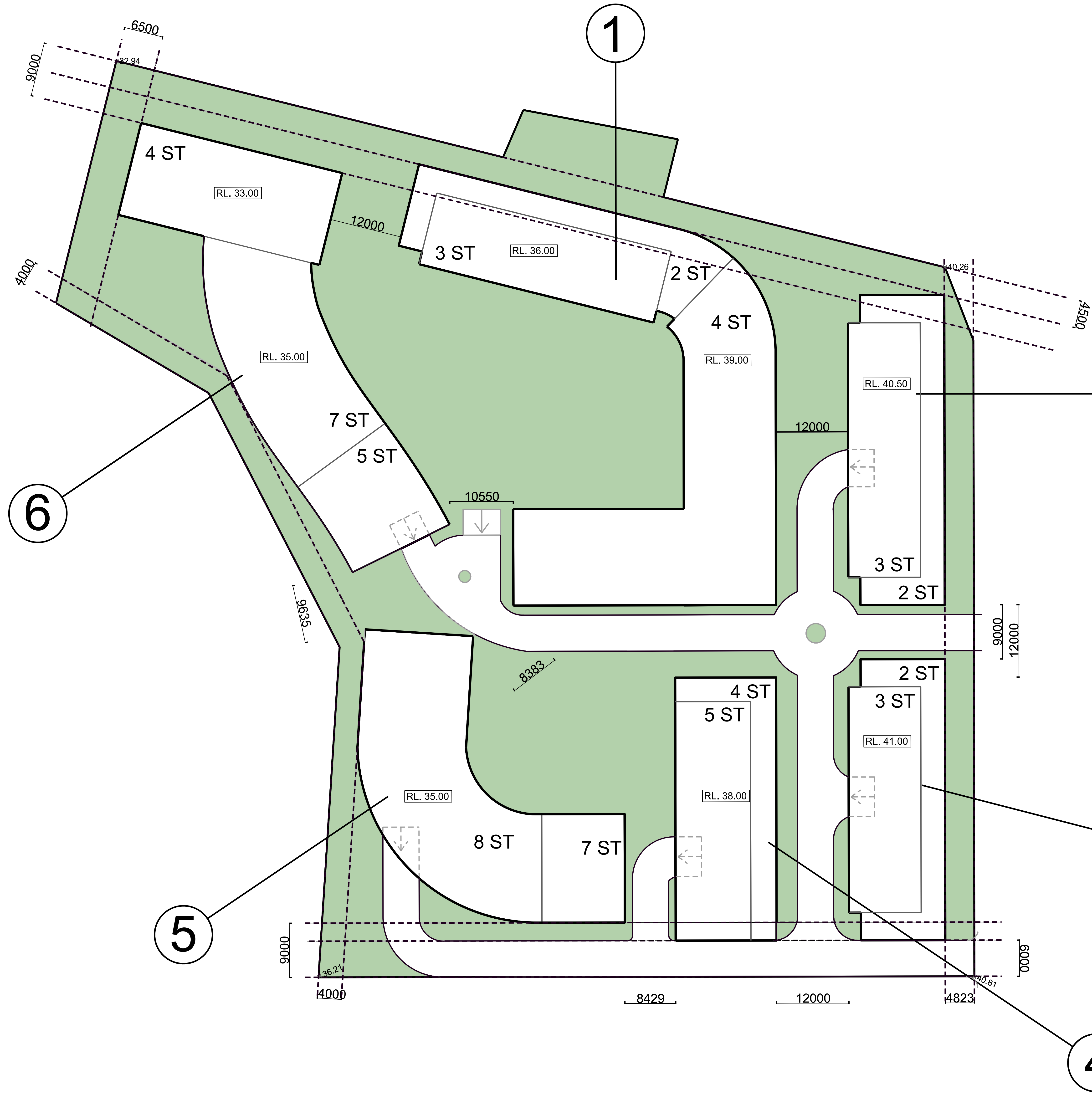
Table T2 – Summary of Groundwater Investigation Results

Sample ID	Heavy Metals								BTEX					TRHs				PAHS			VOCs		
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury [6]	Nickel	Zinc	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1*	F2**	F3 (>C_{16}-C_{34})	F4 (>C_{34}-C_{40})	Naphthalene	Benzo(a)pyrene	Total PAHs	Chloroform (THM)	Bromodichloromethane (THM)	Dibromochloromethane (THM)
BH1M	<1	<0.1	<1	7	<1	<0.1	4	37	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	<0.1	<1	7.6	<0.5	<0.5
BH3M	<1	2.7	<1	5	<1	<0.1	24	110	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	<0.1	<1	13	3.6	0.6
BH4M	<1	<0.1	<1	13	<1	<0.1	12	46	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	<0.1	<1	2.2	0.6	<0.5
BH7M	<1	<0.1	<1	10	<1	<0.1	6	59	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	<0.1	<1	16	3.7	0.7
BH8M	2	<0.1	<1	4	<1	<0.1	4	21	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	<0.1	<1	1.3	<0.5	<0.5
Marine Aquatic Ecosystems [1]	24 (AS III) 13 (AS V)	0.2	1 (Cr VI)	1.4	3.4	0.06	11	8	500	180 [5]	80 [5]	350	200	50 [4]	60 [4]	500 [4]	500 [4]	50	0.2		250 [5]		
ADWQG [3]	10	2	50 (Cr VI)	2000	10	1	20	NR	1	800	300	600		NR	NR	NR	NR	NR	0.01				
HSL A & B [2]									800	NL	NL	NL		1000	1000			NR	NR				
Region 9 SSL [7]																					0.22	0.1	0.17

Notes:	All results are in units of µg/L.
GIL	Groundwater Investigation Level. All GIL values sourced from *National Environment Protection (Assessment of Site Contamination) Measure 1999 – Amendment 2013* , *Schedule (B1)* - Guideline on Investigation Levels for Soil and Groundwater, except where noted.
N.R.	No current publish criterion.
N.D.	Not Detected.
N.A.	Not analysed.
*	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
**	To obtain F2 subtract Naphthalene from the >C10-C16 fraction.
1	NEPM (2013) groundwater investigation level for marine water ecosystems. Indicated threshold value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.
2	NEPM (2013) Table 1A(4) Groundwater HSL A & HSL B for vapour intrusion at the contaminant source depth ranges in sands 2m to <4m.
3	Low relibility trigger value guidelines refer to ANZECC & ARMCANZ (2000) for further guidance.
4	Where GIL is less the than the laboratory reporting limit (LOR), the LOR is adoted as the GIL, as per DEC (2007).
5	Low reliability toxicity data Table 8.3.12, refer to ANZECC & ARMCANZ (2000).
6	Note: Laboratory reporting limit for Mecury dissolved in water is 0.1 µg/L.
7	Region 9 SSLs are screening levels for tap water set by USEPA drinking-water standards that set the maximum permissible level of a contaminant in water that is delivered to any user of a public water system (U.S.EPA, 2006).
🟨	Indicates concentration value exceeding the adopted GIL.
🟧	Indicates concentration valuse exceeds the adopted Region 9 SSL criteria

APPENDIX A

PROPOSED DEVELOPMENT PLANS



BLOCK 1
AREA: 8185

BLOCK 2
AREA: 2414

BLOCK 3
AREA: 2207

BLOCK 4
AREA: 3910

BLOCK 5
AREA: 9976

BLOCK 6
AREA: 9511

Notes

Drawings in this set are not for construction.
Do not scale from drawings.
All dimensions to be checked on site prior to commencement of work.
All discrepancies to be brought to the attention of the Architect.
Larger scale drawings and written dimensions take preference.
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Project Details

Site Area: 16 450 sqm
Proposed GFA: 36,203sqm
Proposed FSR: 2.2 : 1
Site Coverage: 43.5%

Issue	Date	Description	By

Issue	Date	Description	By

Issue	Date	Description	By

CMT ARCHITECTS
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ACN: 161 791 715

Client
Ashbury FMBM Pty LTD.

Project
Residential Development.
149-163 Milton St, Ashbury 2193

Drawing Title
CONCEPT & CALCS

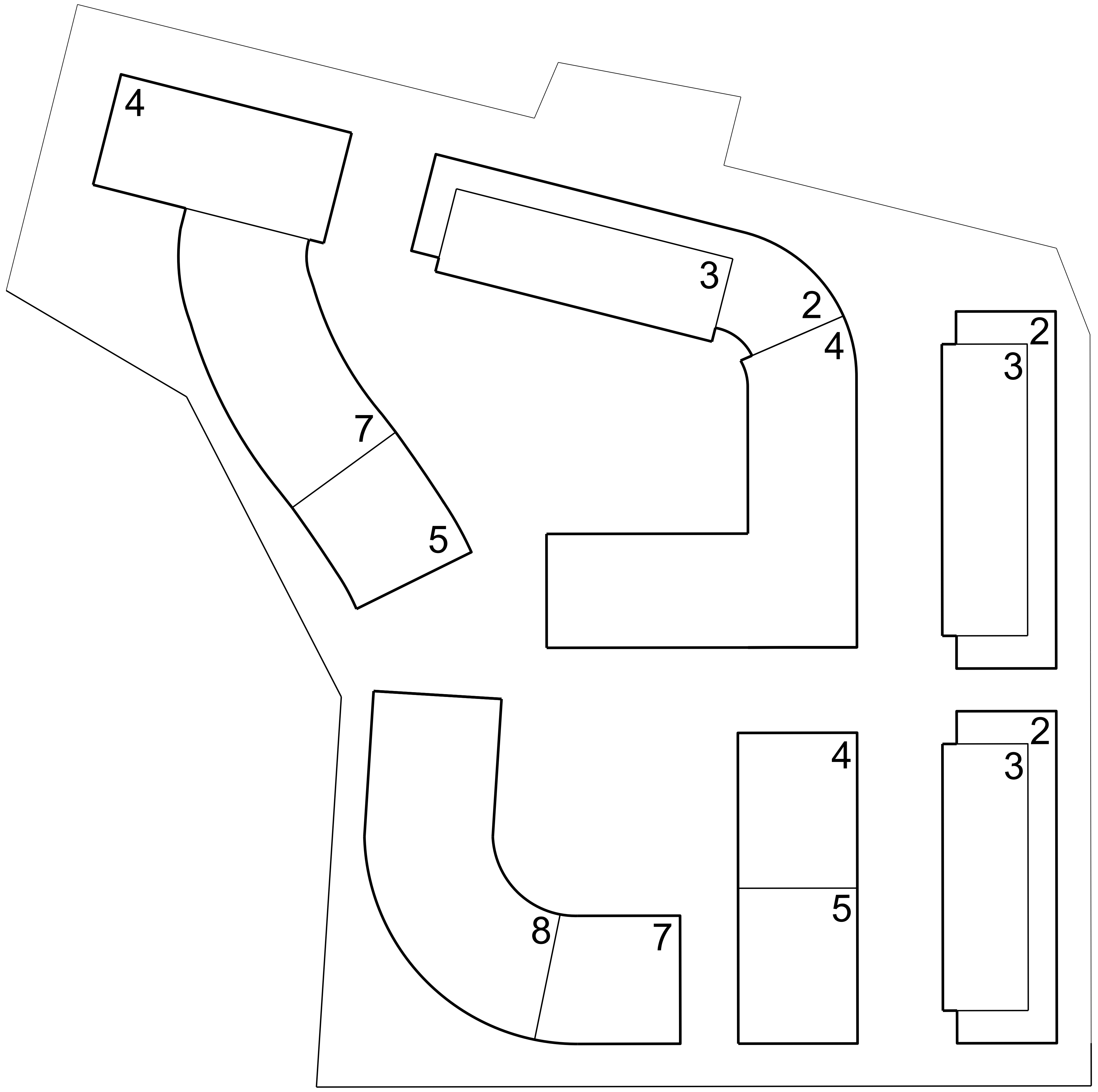
DA SUBMISSION

Scale	Date	Drawn	Checked
1:500 @ A1 1:1000 @ A3	25.01.2016	TO	CT

Job No.	Drawing No.	Issue
00 00 00		A

Design File Ref: Arch/Active/Ashbury

Design Architect: Chris Tsioulos - Reg. No. 5143



Notes

Drawings in this set are not for construction.
Do not scale from drawings.
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Larger scale drawings and written dimensions take preference.
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Issue	Date	Description	By	Issue	Date	Description	By	Issue	Date	Description	By

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ACN: 161 791 715

Client

Project

Drawing Title

DA SUBMISSION

Scale	Date	Drawn	Checked
1:500 @ A1 1:1000 @ A3	00.00.2015		CT

Job No.	Drawing No.	Issue
00 00 00		A

Design File Ref: Arch/Active/

Design Architect: Chris Tsioulos - Reg. No. 5143

APPENDIX B

Site Photographs

Photograph 1: Current site buildings at 149-163 Milton Road, Ashbury. Observed to be in good condition.

Photograph 2: Large warehouse, smaller shed and concreted car-park area located within the northern portion of the site.

Photograph 3: Sandstone brick building located within the southern portion of the site.

Photograph 4: Former landfill, currently used as the ‘Wagener Oval’ located along the south western boundary of the site.

APPENDIX C

Borehole Logs

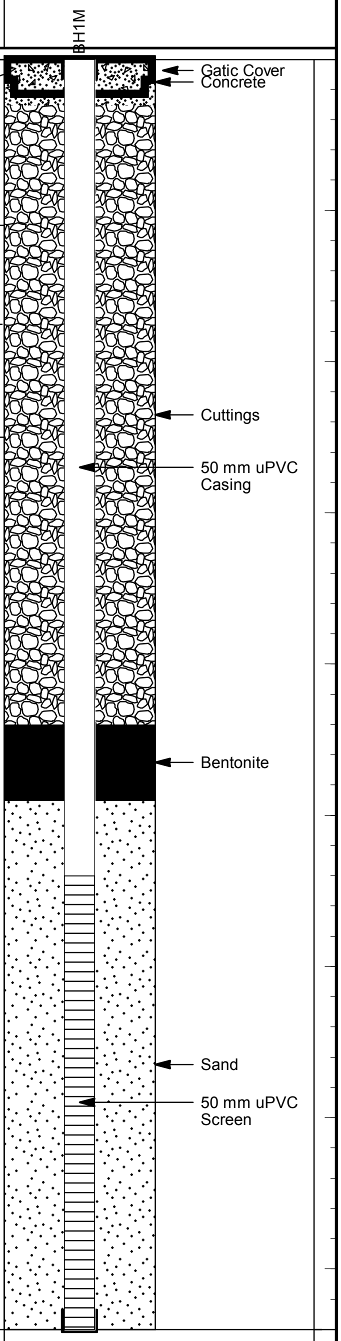
Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH1M

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged SY	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling	Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY
AD/T	E		0	0.10				-	ASPHALT: 100mm thick.	-	-
			1	1.20	BH1_0.1-0.2 ES 0.10-0.20 m BH1_0.4-0.5 ES 0.40-0.50 m BH1_1.0-1.1 ES 1.00-1.10 m			-	FILL: Silty CLAY; high plasticity, dark grey-brown, with some fine, sub-angular concrete gravel, no odour.	M > PL	-
			2	2.50				CI	Silty CLAY; medium plasticity, orange-brown, with some grey mottles, no odour.	M > PL	VSt - H
	E-F			3.00				-	SHALE; brown, extremely low strength, extremely weathered, no odour.	-	-
	F		3	4.00					From 3.0m, very low strength, extremely weathered.		
			4 5 6 7 8	8.40					From 4.0m, grey-brown, low strength, distinctly weathered.		
			9 10						Hole Terminated at 8.40 m Target Depth Reached.		

PIEZOMETER DETAILS
ID Static Water Level
BH1M



This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH3M

Project	Proposed Residential Development				
Location	149-163 Milton Street, Ashbury, NSW			Sheet	1 OF 3
Position	Refer to Figure 2	Surface RL	40.50 m AHD	Date Started	19/1/16
Job No.	E22851	Contractor	Chadwick Geotechnics Pty Ltd	Date Completed	19/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Hanjin DB8	Logged SY	Date: 19/1/16
		Inclination	-90°	Checked JC	Date: 24/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	E	GWNE on completion of augering	0	0.10 40.40				-	Asphaltic-concrete: 100mm thick.	-	-	PAVEMENT
				0.90 39.60	BH3M_0.2-0.3 ES 0.20-0.30 m SPT 0.50-0.60 m N>2 HB BH3M_0.5-0.6			-	FILL: Silty SAND; fine grained, dark grey with some concrete and brick fragments, no odour.	M	-	FILL Appears poorly compacted
			1	1.80 38.70	BH3M_1.0-1.1 ES 1.00-1.10 m SPT 1.50-1.95 m 3,6,7 N=13			-	FILL: Silty Sandy CLAY; medium plasticity, brown, sand is fine grained, with someconcrete fragments, no odour.	M (>PL)		
			2	2.20 38.30	BH3M_1.5-1.8 BH3M_1.8-1.95 1.95 m PP =420-600 kPa			CI	Silty CLAY; medium plasticity, orange-brown, with some grey mottling, no odour.	M (>PL)	H	RESIDUAL SOIL
	E-F		3	3.20 37.30	BH3M_2.0-2.1 ES 2.00-2.10 m BH3M_2.2-2.3 D 2.20-2.30 m BH3M_2.5-2.6 D 2.50-2.60 m SPT 3.00-3.08 m N>1 HB			-	SHALE; brown, extremely low strength, extremely weathered, with iron indurated bands, no odour.	-	-	WEATHERED ROCK
	F		4 5 6 7	7.60	BH3M_3.0-3.08 BH3M_3.7-3.8 D 3.70-3.80 m BH3M_5.0-5.1 D 5.00-5.10 m			-	SHALE; brown-grey, very low strength, distinctly weathered, interbedded with clay, with iron indurated bands, no odour.			ROCK
			8 9 10						Continued as Cored Borehole			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

Hole ID

BH3M

CLIENT : Ashbury FMBM Pty Ltd
CONTRACTOR : Chadwick Geotechnics Pty Ltd
PROJECT : Proposed Residential Development
LOCATION : 149-163 Milton Street, Ashbury, NSW
PROJECT No. : E22851

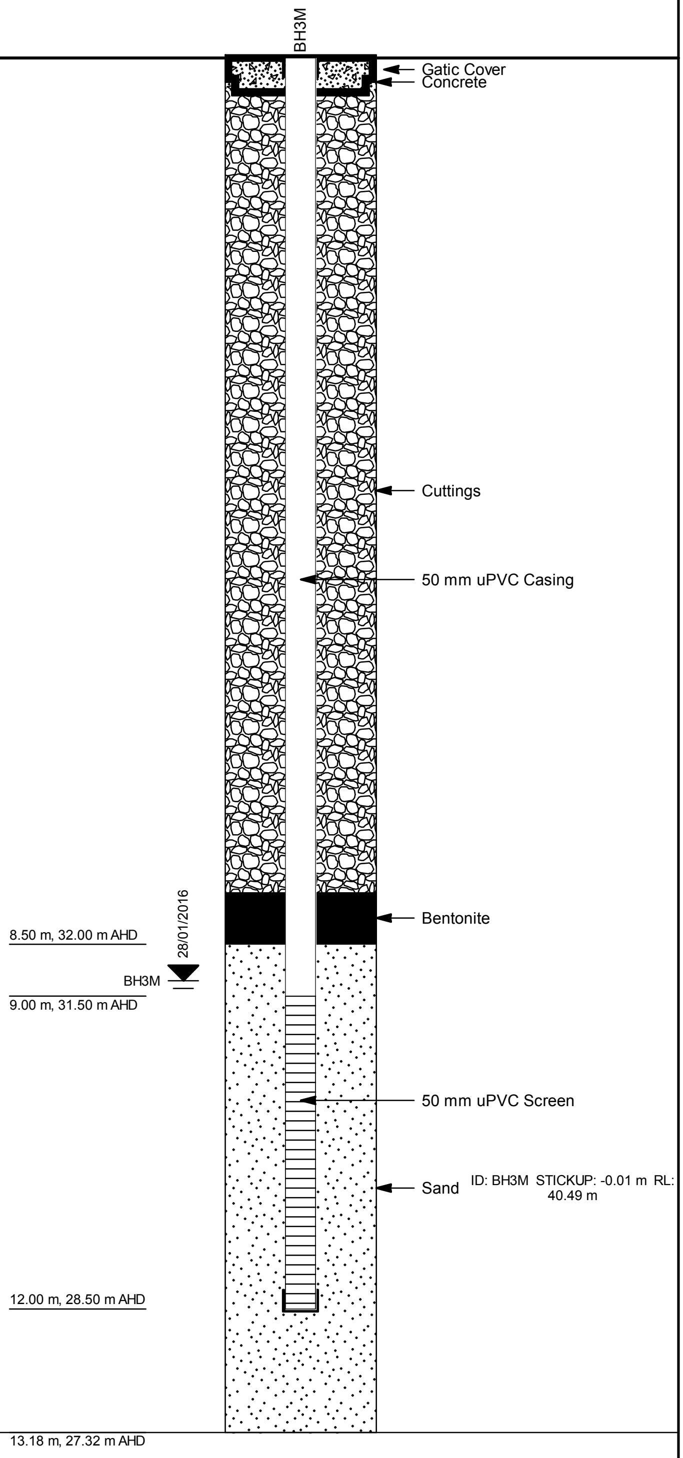
POSITION : Refer to Figure 2
COORD. SYS. : MGA94 Zone 56
GROUND RL : 40.50 m AHD

SHEET : 1 OF 1
LOGGED BY : SY
DRILL DATE : 19/01/2016

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
AD/T	GWNE on completion of augering				Asphaltic-concrete: 100mm thick.
			40		FILL: Silty SAND; fine grained, dark grey with some concrete and brick fragments, no odour.
					FILL: Silty Sandy CLAY; medium plasticity, brown, sand is fine grained, with someconcrete fragments, no odour.
		2			Silty CLAY; medium plasticity, orange-brown, with some grey mottling, no odour.
			38		SHALE; brown, extremely low strength, extremely weathered, with iron indurated bands, no odour.
		4 6	36 34		SHALE; brown-grey, very low strength, distinctly weathered, interbedded with clay, with iron indurated bands, no odour.
NQ	80-90% RETURN	8	32		SHALE; bedding dipping 0-10 degrees, <1mm thick, grey with orange-brown iron staining.
		10 12	30 28		SHALE; bedding dipping 0-10 degrees, dark grey with grey laminiations 1-2mm thick, 5-20mm spacing.
		14			Hole Terminated at 13.18 m Converted to monitoring well.

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
BH3M	Standpipe	-0.01 m 40.51 m	12.00 m 28.50 m	19/01/2016	8.84m



CHECKED BY : JC
CHECKED DATE : 24/02/2016

REMARK
Converted to monitoring well.

Environmental Investigations Australia
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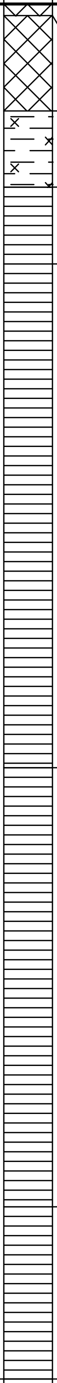
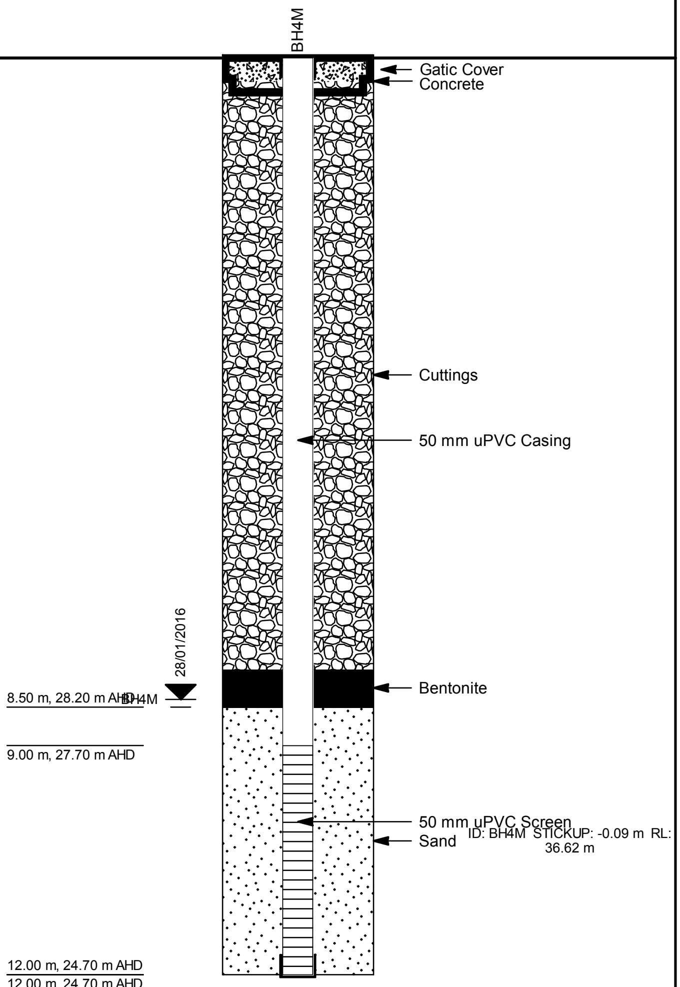
Hole ID
BH4M

CLIENT : Ashbury FMBM Pty Ltd CONTRACTOR : Chadwick Geotechnics Pty Ltd PROJECT : Proposed Residential Development LOCATION : 149-163 Milton Street, Ashbury, NSW PROJECT No. : E22851	POSITION : Refer to Figure 2 COORD. SYS. : MGA94 Zone 56 GROUND RL : 36.70 m AHD	SHEET : 1 OF 1 LOGGED BY : SY DRILL DATE : 18/01/2016

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
AD/T	GWNE on completion of augering				CONCRETE; 150mm thick
			36		FILL: Silty SAND; fine grained, brown, with some brick and concrete fragments, no odour.
		2			Silty CLAY; high plasticity, orange-brown with grey mottling, no odour.
			34		SHALE; grey-brown, extremely low strength, extremely weathered, no odour.
		4 6 8	32 30 28		SHALE; grey-brown, very low strength, distinctly weathered, interbedded with clay, with iron indurated bands, no odour. From 7.2m; grey.
		10 12 14	26 24 22		SHALE; grey, very low strength, distinctly weathered, interbedded with clay, with iron indurated bands, no odour.
NQ	80-90% RETURN	16	20		SHALE; bedding dipping 0-5 degrees, dark grey with grey laminations 1-2mm thick, 10-30mm spacing.
		18	18		Hole Terminated at 18.00 m Converted to monitoring well.

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
BH4M	Standpipe	-0.09 m 36.79 m	12.00 m 24.70 m	18/01/2016	8.32m



CHECKED BY : JC
CHECKED DATE : 24/02/2016

REMARK
Converted to monitoring well.

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH5

Project	Proposed Residential Development				
Location	149-163 Milton Street, Ashbury, NSW			Sheet	1 OF 3
Position	Refer to Figure 2	Surface RL	37.40 m AHD	Date Started	20/1/16
Job No.	E22851	Contractor	Chadwick Geotechnics Pty Ltd	Date Completed	20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Hanjin DB8	Logged SY	Date: 20/1/16
		Inclination	-90°	Checked JC	Date: 24/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	VH	GWNE on completion of augering	0	*0.15* 37.25				-	CONCRETE; 150mm thick.	-	-	CONCRETE HARDSTAND
	E			*0.40* 37.00	BH5_0.2-0.3 ES 0.20-0.30 m			-	FILL: Silty SAND; fine grained, brown with some brick and concrete fragments, no odour.	M	-	FILL Appears poorly compacted
				0.80 36.60	BH5_0.4-0.5 ES 0.40-0.50 m SPT 0.50-0.80 m 3,8/150 HB N>8 BH5_0.5-0.8 0.80 m PP =540->600 kPa			CI	Silty CLAY; medium plasticity, orange-brown with grey mottling, with some fine, subangular ironstone gravel, no odour.	M (>PL)	H	RESIDUAL SOIL
			1 2	*3.00* 34.40	BH5_1.3-1.4 D 1.30-1.40 m			-	SHALE; brown, extremely low strength, extremely weathered, with iron indurated bands, no odour.			WEATHERED ROCK
	E-F		3 4 5 6	*6.80* 30.60				-	SHALE; grey-brown, very low strength, distinctly weathered, with iron indurated bands, no odour.	-	-	ROCK
	F			*7.00*					From 6.8m; dark grey, low to medium strength, slightly weathered to fresh.			
			7 8 9 10						Continued as Cored Borehole			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

BOREHOLE: BH6

Project	Proposed Residential Development			Sheet	1 OF 3
Location	149-163 Milton Street, Ashbury, NSW			Date Started	20/1/16
Position	Refer to Figure 2	Surface RL	40.40 m AHD	Date Completed	20/1/16
Job No.	E22851	Contractor	Chadwick Geotechnics Pty Ltd	Logged SY	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Hanjin DB8	Checked JC	Date: 24/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	E	GWNE on completion of augering	0	40.34				-	Asphaltic-concrete; 60mm thick.	-	-	PAVEMENT
					BH6_0.2-0.3 ES 0.20-0.30 m BH6_0.5-0.85			-	FILL: Silty SAND; fine grained, brown, with some brick and concrete fragments, no odour.	M	-	FILL Appears poorly compacted
			1	*0.85* 39.55	BH6_0.85-0.95 0.95 m PP >600 kPa BH6_1.0-1.1 ES 1.00-1.10 m			CI	Silty CLAY; medium plasticity, orange-brown with some grey mottling, no odour.	M (>PL)	H	RESIDUAL SOIL
	E-F		2 3 4	*1.40* 39.00	BH6_1.5-1.6			-	SHALE; brown, extremely low strength, extremely weathered, with iron indurated bands, no odour.			WEATHERED ROCK
			5 6 7	*4.10* 36.30				-	SHALE; grey-brown, very low strength, distinctly weathered, with iron indurated bands, no odour.	-	-	ROCK
				7.80 32.60					From 7.8m; grey, low strength, distinctly weathered.			
			8 9 10	*8.00*					Continued as Cored Borehole			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH7M

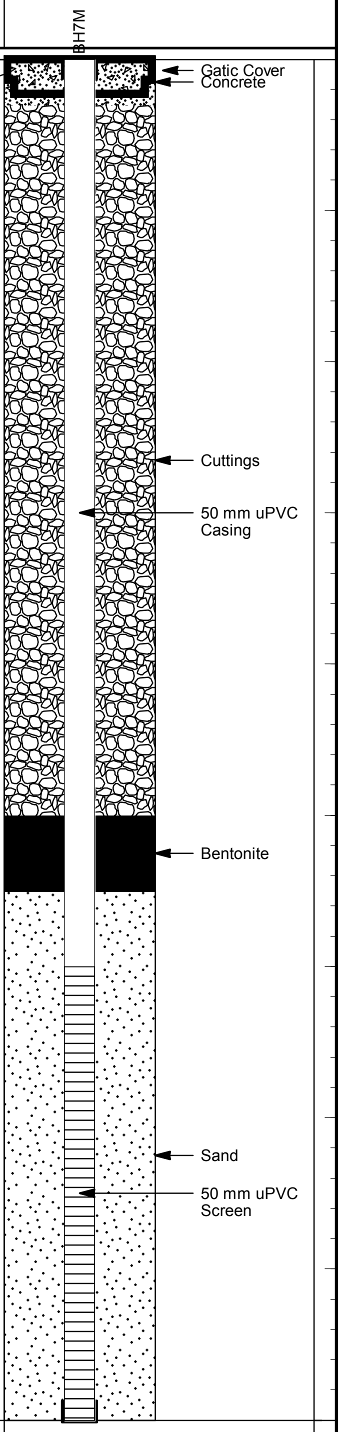
Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor HartGeo Pty Ltd
Drill Rig Ute-mounted rig
Inclination -90°

Sheet 1 OF 1
Date Started 20/1/16
Date Completed 20/1/16
Logged SY Date: 20/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY
AD/T	-		0	0.10				-	ASPHALT: 100mm thick.	-	-
					BH7_0.2-0.3 ES 0.20-0.30 m	■	▨	-	FILL: SANDSTONE; orange-brown, with fine to coarse, sub-angular sandstone gravel, well compacted, no odour.	D - M	-
			2		BH7_2.0-2.1 ES 2.00-2.10 m	■	▨				
				3.40			▨		From 3.4m, with some fine, sub-angular brick.		
				3.80	BH7_4.0-4.1 ES 4.00-4.10 m	■	▨	-	FILL: Silty SAND; fine grained, brown, with some fine, sub-angular brick gravel, no odour.		
			5		BH7_5.0-5.1 ES 5.00-5.10 m	■	▨				
				5.40			☰	-	SHALE; pale brown, extremely low strength-very low strength, extremely weathered, no odour.	-	
				8.50			☰		From 8.5m, grey-brown, low strength, distinctly weathered.		
			9	9.00					Hole Terminated at 9.00 m Target Depth Reached.		
			10								

PIEZOMETER DETAILS
ID Static Water Level
BH7M



This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

Environmental Investigations Australia
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BOREHOLE: BH8M

Project	Proposed Residential Development	Sheet	1 OF 3
Location	149-163 Milton Street, Ashbury, NSW	Date Started	21/1/16
Position	Refer to Figure 2	Surface RL	40.40 m AHD
Job No.	E22851	Date Completed	21/1/16
Client	Ashbury FMBM Pty Ltd	Logged SY	Date: 21/1/16
Contractor	Chadwick Geotechnics Pty Ltd	Checked JC	Date: 24/2/16
Drill Rig	Hanjin DB8		
Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	E		0					-	Asphaltic-concrete; 80mm thick	-	-	PAVEMENT
				40.32				-	FILL: Silty SAND; fine grained, brown, no odour.	M	-	FILL Appears poorly compacted
			1	*0.40* 40.00	SPT 0.50-0.95 m 3,4,7 N=11 BH8_0.5-0.95 0.95 m PP =420-460 kPa			CI	Silty CLAY; medium plasticity, orange-brown with grey mottling, no odour.	M (>PL)	H	RESIDUAL SOIL
	E-F	28/01/16 GWNE on completion of augering	2 3 4 5 6 7	*1.20* 39.20				-	SHALE; brown, extremely low to very low strength, extremely to distinctly weathered, with iron indurated bands, no odour.	-	-	WEATHERED ROCK
	F			*7.50* 32.90					From 7.5m; grey, low strength, distinctly weathered.			ROCK
			8 9 10	*7.70*					Continued as Cored Borehole			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Hole ID
BH8M

CLIENT : Ashbury FMBM Pty Ltd
CONTRACTOR : Chadwick Geotechnics Pty Ltd
PROJECT : Proposed Residential Development
LOCATION : 149-163 Milton Street, Ashbury, NSW
PROJECT No. : E22851

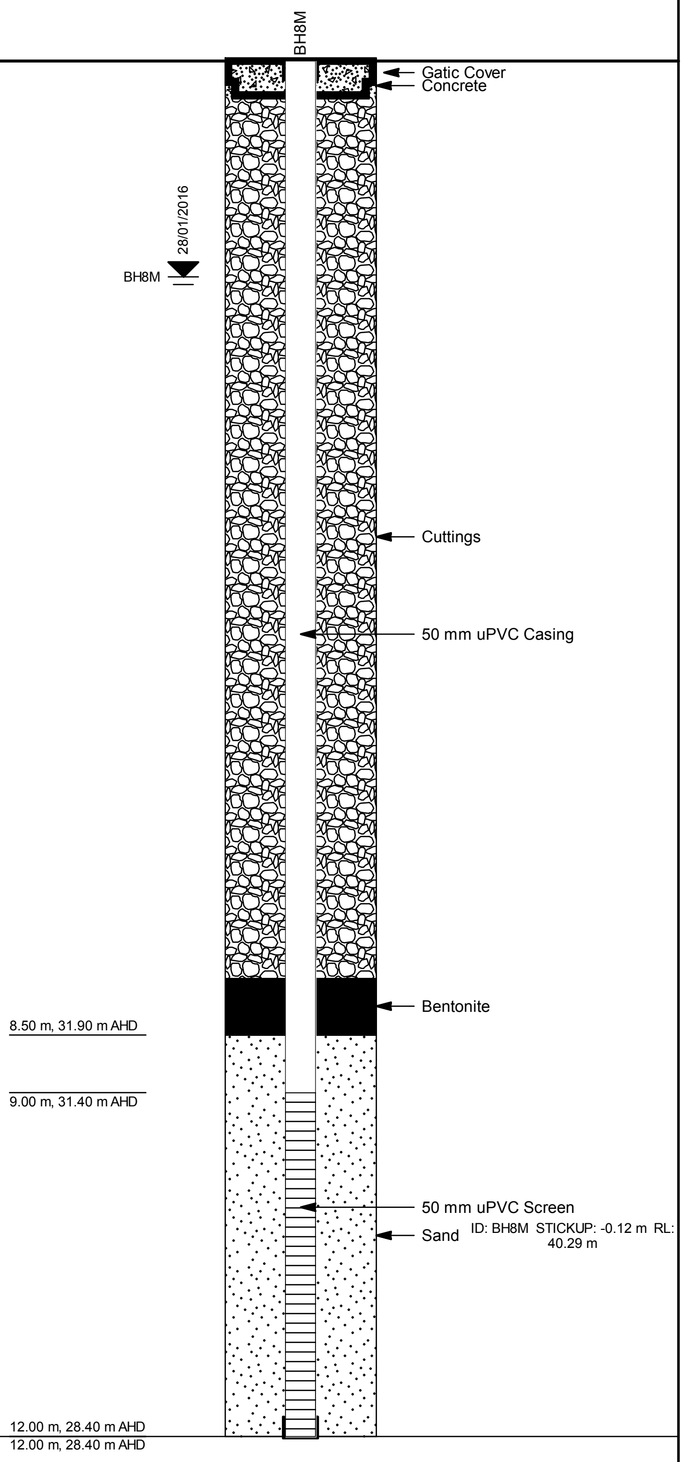
POSITION : Refer to Figure 2
COORD. SYS. : MGA94 Zone 56
GROUND RL : 40.40 m AHD

SHEET : 1 OF 1
LOGGED BY : SY
DRILL DATE : 21/01/2016

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
BH8M	Standpipe	-0.12 m 40.52 m	12.00 m 28.40 m	21/01/2016	1.77m

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
AD/T	GWNE on completion of augering				Asphaltic-concrete; 80mm thick
			40		FILL: Silty SAND; fine grained, brown, no odour.
					Silty CLAY; medium plasticity, orange-brown with grey mottling, no odour.
		2	38		SHALE; brown, extremely low to very low strength, extremely to distinctly weathered, with iron indurated bands, no odour.
		4 6	36 34		From 7.5m; grey, low strength, distinctly weathered.
NQ	80-90% RETURN	8 10	32 30		SHALE; bedding dipping 0-5 degrees, dark grey to dark brown with grey laminations, 1-2mm thick, 5-30mm spacing.
		12	28		Hole Terminated at 12.00 m Converted to monitoring well.



CHECKED BY : JC
CHECKED DATE : 24/02/2016

REMARK
Converted to monitoring well.

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH9

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	0.20				-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				3.00	BH9_0.2-0.3 ES 0.20-0.30 m BH9_0.7-0.8 ES 0.70-0.80 m BH9_1.2-1.3 ES 1.20-1.30 m BH9_1.7-1.8 ES 1.70-1.80 m BH9_2.9-3.0 ES 2.90-3.00 m			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
				4.10	BH9_3.1-3.2 ES 3.10-3.20 m BH9_4.0-4.1 ES 4.00-4.10 m			-	SHALE; brown, inferred extremely weathered, no odour.	M		WEATHERED ROCK
									Hole Terminated at 4.10 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH10

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	0.20				-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.70	BH10_0.2-0.3 ES 0.20-0.30 m			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1	1.40	BH10_0.6-0.7 ES 0.60-0.70 m BH10_1.1-1.2 ES 1.10-1.20 m			-	FILL: Gravelly Silty SAND; fine to medium grained, pink, no odour.	M		
			2	2.40	BH10_1.2-1.3 ES 1.20-1.30 m BH10_2.2-2.3 ES 2.20-2.30 m			CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			3 4 5 6 7 8 9 10						Hole Terminated at 2.40 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH11

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2				
Job No.	E22851	Contractor	HartGeo Pty Ltd	Date Completed	20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Logged CW	Date: 20/1/16
		Inclination	-90°	Checked EW	Date: 17/2/16

Drilling					**Sampling**		**Field Material Description**					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	*0.20*			⊠	-	ASPHALT: 200mm thick.	-		CONCRETE HARDSTAND
				1.00	BH11_0.2-0.3 ES 0.20-0.30 m BH11_0.7-0.8 ES 0.70-0.80 m	■ ■	⊠	-	FILL: Sandy CLAY; high plasticity, orange/brown, with trace of gravel, no odour.	M	-	FILL
			1	*1.50*	BH11_1.2-1.3 ES 1.20-1.30 m	■	┄	CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2	*2.30*	BH11_2.2-2.3 ES 2.20-2.30 m	■	▤	-	SHALE; brown, inferred extremely weathered, no odour.	M		WEATHERED ROCK
									Hole Terminated at 2.30 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH12

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	*0.20*			-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.80	BH12_0.2-0.3 ES 0.20-0.30 m	■	-	FILL: Gravelly Clayey Silty SAND; fine to medium grained, brown, with fine, angular gravel, no odour.	M		FILL
			1	*1.60*	BH12_1.2-1.3 ES 1.20-1.30 m	■	-	FILL: Gravelly Silty SAND; fine to medium grained, pink, no odour.	M		
			2	*2.60*	BH12_1.8-1.9 ES 1.80-1.90 m	■	CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
				3.00	BH12_2.8-2.9 ES 2.80-2.90 m	■	-	SHALE; brown, inferred extremely weathered, no odour.	M		WEATHERED ROCK
			3					Hole Terminated at 3.00 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E22851 BOREHOLE LOGS.GPJ <<DrawingFile>> 17/02/2016 17:27 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

Environmental Investigations Australia
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BOREHOLE: BH13

Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor HartGeo Pty Ltd
Drill Rig Ute-mounted rig
Inclination -90°

Sheet 1 OF 1
Date Started 20/1/16
Date Completed 20/1/16
Logged CW Date: 20/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	0.20				-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.40	BH13_0.2-0.3 ES 0.20-0.30 m	■		-	FILL: Gravelly Sandy SILT; medium grained, dark brown, no odour.	M		FILL
			1	2.00	BH13_0.6-0.7 ES 0.60-0.70 m BH13_1.6-1.7 ES 1.60-1.70 m	■ ■		CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2 3 4 5 6 7 8 9 10						Hole Terminated at 2.00 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E22851 BOREHOLE LOGS.GPJ <<DrawingFile>> 17/02/2016 17:27 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

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BOREHOLE: BH14

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	*0.20*				-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
AD/T	-	GWNE		*0.60*	BH14_0.2-0.3 ES 0.20-0.30 m			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M	-	FILL
			1	*2.00*	BH14_0.6-0.7 ES 0.60-0.70 m BH14_1.6-1.7 ES 1.60-1.70 m			CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 2.00 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH15

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	0.20				-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.60	BH15_0.2-0.3 ES 0.20-0.30 m	■		-	FILL: Gravelly Sandy SILT; medium grained, dark brown, no odour.	M		FILL
				0.80	BH15_0.6-0.7 ES 0.60-0.70 m	■		-	FILL: Gravelly Sandy Silty CLAY; high plasticity, dark grey, with fine, angular gravel, no odour.	M		
			1	2.00	BH15_1.1-1.2 ES 1.10-1.20 m BH15_1.9-2.0 ES 1.90-2.00 m	■ ■		CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 2.00 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

BOREHOLE: BH16

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	*0.20*				-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.60	BH16_0.2-0.3 ES 0.20-0.30 m			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1	*2.00*	BH16_0.8-0.9 ES 0.80-0.90 m BH16_1.8-1.9 ES 1.80-1.90 m			CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 2.00 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH17

Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor HartGeo Pty Ltd
Drill Rig Ute-mounted rig
Inclination -90°

Sheet 1 OF 1
Date Started 20/1/16
Date Completed 20/1/16
Logged CW Date: 20/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	0.20			☒	-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.60	BH17_0.2-0.3 ES 0.20-0.30 m BH17_0.5-0.6 ES 0.50-0.60 m	■ ■	☒	-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1	2.00	BH17_1.5-1.6 ES 1.50-1.60 m	■	▤	CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2 3 4 5 6 7 8 9 10						Hole Terminated at 2.00 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH18

Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor HartGeo Pty Ltd
Drill Rig Ute-mounted rig
Inclination -90°

Sheet 1 OF 1
Date Started 20/1/16
Date Completed 20/1/16
Logged CW Date: 20/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT	-	GWNE	0	0.20				-	CONCRETE: 200mm thick.	-	-	CONCRETE HARDSTAND
AD/T			1	1.60	BH18_0.2-0.3 ES 0.20-0.30 m BH18_1.2-1.3 ES 1.20-1.30 m	■ ■		CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2 3 4 5 6 7 8 9 10						Hole Terminated at 1.60 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

BOREHOLE: BH19

Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor HartGeo Pty Ltd
Drill Rig Ute-mounted rig
Inclination -90°

Sheet 1 OF 1
Date Started 20/1/16
Date Completed 20/1/16
Logged CW Date: 20/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT	-	GWNE	0	0.20				-	CONCRETE: 200mm thick.	-	-	CONCRETE HARDSTAND
AD/T			1	1.80	BH19_0.2-0.3 ES 0.20-0.30 m BH19_1.2-1.3 ES 1.20-1.30 m BH19_1.7-1.8 ES 1.70-1.80 m			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			2	3.10	BH19_2.0-2.1 ES 2.00-2.10 m BH19_3.0-3.1 ES 3.00-3.10 m			CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			3						Hole Terminated at 3.10 m Target Depth Reached.			
			4 5 6 7 8 9 10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH20

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	*0.20*			▨	-	CONCRETE: 200mm thick.	-	-	CONCRETE HARDSTAND
AD/T	-	GWNE		*0.50*	BH20_0.2-0.3 ES 0.20-0.30 m	■	▨	-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1	*1.20*	BH20_0.7-0.8 ES 0.70-0.80 m	■	▨		From 0.5m, with clay.			
			2	*2.50*	BH20_1.4-1.5 ES 1.40-1.50 m BH20_2.4-2.5 ES 2.40-2.50 m	■ ■	▤	CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			3 4 5 6 7 8 9 10						Hole Terminated at 2.50 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH21

Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor HartGeo Pty Ltd
Drill Rig Ute-mounted rig
Inclination -90°

Sheet 1 OF 1
Date Started 20/1/16
Date Completed 20/1/16
Logged CW Date: 20/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT	-	GWNE	0	0.20				-	CONCRETE: 200mm thick.	-	-	CONCRETE HARDSTAND
AD/T				0.60	BH21_0.2-0.3 ES 0.20-0.30 m			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1	2.00	BH21_0.8-0.9 ES 0.80-0.90 m BH21_1.8-1.9 ES 1.80-1.90 m			CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 2.00 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

Environmental Investigations Australia
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BOREHOLE: BH22

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2			Date Completed	20/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	0.20				-	ASPHALT: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.60	BH22_0.2-0.3 ES 0.20-0.30 m			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1	2.00	BH22_0.8-0.9 ES 0.80-0.90 m 0.90 m PID = 3.7 ppm BH22_1.8-1.9 ES 1.80-1.90 m			CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 2.00 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

BOREHOLE: BH23

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	20/1/16
Position	Refer to Figure 2				
Job No.	E22851	Contractor	HartGeo Pty Ltd	Date Completed	20/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Logged CW	Date: 20/1/16
		Inclination	-90°	Checked EW	Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT	-	GWNE	0	0.20			▨	-	CONCRETE: 200mm thick.	-	-	CONCRETE HARDSTAND
AD/T			1	1.10	BH23_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 206 ppm	■	▨	-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			2	2.40	BH23_1.1-1.2 ES 1.10-1.20 m 1.10 m PID = 39.5 ppm BH23_1.9-2.0 ES 1.90-2.00 m 1.90 m PID = 10 ppm	■ ■	▨	-	FILL: Gravelly Silty SAND; fine to medium grained, pink, no odour.	M		
			3	4.00	BH23_2.6-2.7 ES 2.60-2.70 m 2.60 m PID = 11.9 ppm BH23_3.6-3.7 ES 3.60-3.70 m 3.60 m PID = 24.8 ppm	■ ■	▤	-	SHALE; brown, inferred extremely weathered, no odour.	M		WEATHERED ROCK
			4 5 6 7 8 9 10						Hole Terminated at 4.00 m Target Depth Reached.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

BOREHOLE: BH24

Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor HartGeo Pty Ltd
Drill Rig Ute-mounted rig
Inclination -90°

Sheet 1 OF 1
Date Started 20/1/16
Date Completed 20/1/16
Logged CW Date: 20/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	0.20				-	CONCRETE: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.40	BH24_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 262.6 ppm			-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1	2.00	BH24_0.6-0.7 ES 0.60-0.70 m 0.60 m PID = 8.5 ppm BH24_1.6-1.7 ES 1.60-1.70 m 1.60 m PID = 47.2 ppm			CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 2.00 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH25

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	21/1/16
Position	Refer to Figure 2			Date Completed	21/1/16
Job No.	E22851	Contractor	N/A	Logged CW	Date: 21/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Hand auger	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	*0.10*				-	CONCRETE: 100mm thick.	-		CONCRETE HARDSTAND
HA	-	GWNE		*0.40*	BH25_0.1-0.2 ES 0.10-0.20 m 0.10 m PID = 2.4 ppm	■		-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M	-	FILL
				0.50	BH25_0.4-0.5 ES 0.40-0.50 m 0.40 m PID = 36.4 ppm	■		-	FILL: Gravelly Sandy SILT; medium grained, dark brown, no odour.	M		
									Hole Terminated at 0.50 m Refusal.			
			1									
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH26

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	21/1/16
Position	Refer to Figure 2			Date Completed	21/1/16
Job No.	E22851	Contractor	N/A	Logged CW	Date: 21/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Hand auger	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	0.10				-	CONCRETE: 100mm thick.	-		CONCRETE HARDSTAND
HA	-	GWNE		0.60	BH26_0.1-0.2 ES 0.10-0.20 m 0.10 m PID = 53 ppm	■		-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M	-	FILL
			1	1.50	BH26_0.6-0.7 ES 0.60-0.70 m 0.60 m PID = 139.4 ppm BH26_1.2-1.3 ES 1.20-1.30 m 1.20 m PID = 46.5 ppm	■ ■		CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 1.50 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH27

Project	Detailed Site Investigation		
Location	149-163 Milton Street, Ashbury NSW	Sheet	1 OF 1
Position	Refer to Figure 2	Date Started	21/1/16
Job No.	E22851	Date Completed	21/1/16
Client	Ashbury FMBM Pty Ltd	Logged CW	Date: 21/1/16
		Checked EW	Date: 17/2/16

Contractor N/A
Drill Rig Hand auger
Inclination -90°

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT	-	GWNE	0	*0.20*			▨	-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
HA				*0.60*	BH27_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 135 ppm	■	▨	-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M	-	FILL
									Hole Terminated at 0.60 m Refusal.			

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH28

Project Detailed Site Investigation
Location 149-163 Milton Street, Ashbury NSW
Position Refer to Figure 2
Job No. E22851
Client Ashbury FMBM Pty Ltd

Contractor N/A
Drill Rig Hand auger
Inclination -90°

Sheet 1 OF 1
Date Started 21/1/16
Date Completed 21/1/16
Logged CW Date: 21/1/16
Checked EW Date: 17/2/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA DT	-	GWNE	0	0.30	BH28_0.3-0.4 ES 0.30-0.40 m 0.30 m PID = 26.1 ppm			-	CONCRETE: 200mm thick.	-	-	CONCRETE HARDSTAND
				0.70				-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M		FILL
			1 2 3 4 5 6 7 8 9 10						Hole Terminated at 0.70 m Refusal.			

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH29

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	149-163 Milton Street, Ashbury NSW			Date Started	21/1/16
Position	Refer to Figure 2			Date Completed	21/1/16
Job No.	E22851	Contractor	HartGeo Pty Ltd	Logged CW	Date: 21/1/16
Client	Ashbury FMBM Pty Ltd	Drill Rig	Ute-mounted rig	Checked EW	Date: 17/2/16
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	0.20				-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
AD/T	-	GWNE		0.50	BH29_0.2-0.3 ES 0.20-0.30 m	■		-	FILL: Silty SAND; fine to medium grained, grey/brown, with trace of fine, sub-angular gravel , no odour.	M	-	FILL
			1	2.00	BH29_0.8-0.9 ES 0.80-0.90 m BH29_1.4-1.5 ES 1.40-1.50 m	■ ■		CH	CLAY; high plasticity, brown/red/orange, with trace gravel, no odour.	M		RESIDUAL SOIL
			2						Hole Terminated at 2.00 m Target Depth Reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT LOGS

DRILLING/EXCAVATION METHOD

HA	Hand Auger	RD	Rotary blade or drag bit	NQ	Diamond Core - 47 mm
DTC	Diatube Coring	RT	Rotary Tricone bit	NMLC	Diamond Core - 52 mm
NDD	Non-destructive digging	RAB	Rotary Air Blast	HQ	Diamond Core - 63 mm
AS*	Auger Screwing	RC	Reverse Circulation	HMLC	Diamond Core - 63mm
AD*	Auger Drilling	PT	Push Tube	BH	Tractor Mounted Backhoe
*V	V-Bit	CT	Cable Tool Rig	EX	Tracked Hydraulic Excavator
*T	TC-Bit, e.g. ADT	JET	Jetting	EE	Existing Excavation
ADH	Hollow Auger	WB	Washbore or Bailer	HAND	Excavated by Hand Methods

PENETRATION/EXCAVATION RESISTANCE

L	**Low resistance.** Rapid penetration/ excavation possible with little effort from equipment used.
M	**Medium resistance.** Penetration/ excavation possible at an acceptable rate with moderate effort from equipment used.
H	**High resistance.** Penetration/ excavation is possible but at a slow rate and requires significant effort from equipment used.
R	**Refusal/ Practical Refusal.** No further progress possible without risk of damage or unacceptable wear to equipment used.

These assessments are subjective and are dependent on many factors, including equipment power and weight, condition of excavation or drilling tools and experience of the operator.

WATER

▽	Water level at date shown	◁	Partial water loss
▷	Water inflow	◀	Complete water loss

GROUNDWATER NOT OBSERVED	Observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave-in of the borehole/ test pit.
GROUNDWATER NOT ENCOUNTERED	Borehole/ test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/ test pit been left open for a longer period.

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following 150mm
seating 30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
Sampling	
DS	Disturbed Sample
BDS	Bulk disturbed Sample
GS	Gas Sample
WS	Water Sample
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres
Testing	
FP	Field Permeability test over section noted
FVS	Field Vane Shear test expressed as uncorrected shear strength (sv = peak value, sr = residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket Penetrometer test expressed as instrument reading in kPa
WPT	Water Pressure tests
DCP	Dynamic Cone Penetrometer test
CPT	Static Cone Penetration test
CPTu	Static Cone Penetration test with pore pressure (u) measurement

RANKING OF VISUALLY OBSERVABLE CONTAMINATION AND ODOUR (for specific soil contamination assessment

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant visible contamination	R = D	Strong non-natural odours identified

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)

$$= \frac{\text{Length of core recevered}}{\text{Lengh of core run}} \text{ x } 100$$

SCR = Solid Core Recovery (%)

$$= \frac{\Sigma \text{ Length ofcylindrical core recevered}}{\text{Lengh of core run}} \text{ x } 100$$

RQD = Rock Quality Designation (%)

$$= \frac{\Sigma\text{Axial Lenghts of core} > 100\text{mm}}{\text{Lengh of core run}} \text{ x } 100$$

MATERIAL BOUNDARIES

———— = inferred boundary

- - - - - - - - = probable boundary

— ?— ?— ?— ?— ? = possible boundary

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METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT LOGS

▩	FILL	⁂	ORGANIC SOILS (OL, OH or Pt)	☰	CLAY (CL, CI or CH)
○	COUBLES or BOULDERS	×	SILT (ML or MH)	⁙	SAND (SP or SW)
○	GRAVEL (GP or GW)				

Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay

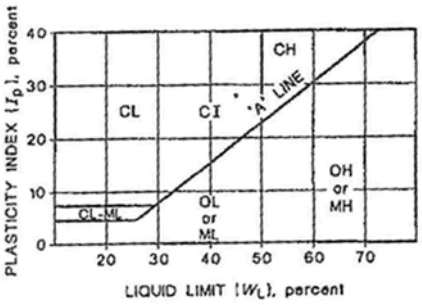
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/tactile methods.

PARTICLE SIZE CHARACTERISTICS

Major Division	Sub Division	Particle Size
BOULDERS		>200 mm
COBBLES		63 to 200 mm
GRAVEL	Coarse	20 to 63 mm
	Medium	6 to 20 mm
	Fine	2 to 6 mm
SAND	Coarse	0.6 to 2 mm
	Medium	0.2 to 0.6 mm
	Fine	0.075 to 0.2mm
SILT		0.002 to 0.075 mm
CLAY		<0.002 mm

PLASTICITY PROPERTIES



USCS SYMBOLS

Major Divisions		Symbol	Description
COARSE GRAINED SOILS More than 50% by dry mass less than 63mm is greater than 0.075mm	More than 50% of coarse grains are >2.mm	GW	Well graded gravel and gravel-sand mixtures, little or no fines.
		GP	Poorly graded gravel and gravel-sand mixtures, little or no fines.
		GM	Silty gravel, gravel-sand-silt mixtures.
		GC	Clayey gravel, gravel-sand-clay mixtures.
	More than 50% of coarse grains are <2 mm	SW	Well graded sand and gravelly sand, little or no fines.
		SP	Poorly graded sand and gravelly sand, little or no fines.
		SM	Silty sand, sand-silt mixtures.
		SC	Clayey sand, sandy-clay mixtures.
FINE GRAINED SOILS More than 50% by dry mass less than 63mm is less than 0.075mm	Liquid Limit less < 50%	ML	Inorganic silts of low plasticity, very fine sands, rock flour, silty or clayey fine sands.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
		OL	Organic silts and organic silty clays of low plasticity.
	Liquid Limit > than 50%	MH	Inorganic silts of high plasticity.
		CH	Inorganic clays of high plasticity.
		OH	Organic clays of medium to high plasticity.
		PT	Peat muck and other highly organic soils.

MOISTURE CONDITION

Symbol	Term	Description
D	Dry	Sands and gravels are free flowing. Clays & Silts may be brittle or friable and powdery.
M	Moist	Soils are darker than in the dry condition & may feel cool. Sands and gravels tend to cohere.
W	Wet	Soils exude free water. Sands and gravels tend to cohere.

Moisture content of cohesive soils may also be described in relation to plastic limit (WP) or liquid limit (WL) [» much greater than, > greater than, < less than, « much less than].

CONSISTENCY

Symbol	Term	Undrained Shear Strength
VS	Very Soft	0. to 12 kPa
S	Soft	12 to 25 kPa
F	Firm	25 to 50 kPa
St	Stiff	50 to 100 kPa
VSt	Very Stiff	100 to 200 kPa
H	Hard	Above 200 kPa

DENSITY

Symbol	Term	Density Index %	SPT "N" #
VL	Very Loose	< 15	0 to 4
L	Loose	15 to 35	4 to 10
MD	Medium Density	35 to 65	10 to 30
D	Dense	65 to 85	30 to 50
VD	Very Dense	Above 85	Above 50

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.
SPT correlations are not stated in AS1726 – 1993, and may be subject to corrections for overburden pressure and equipment type.

MINOR COMPONENTS

Term	Assessment Guide	Proportion by Mass
Trace	Presence just detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: ≤ 5% Fine grained soil: ≤15%
Some	Presence easily detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: 5 - 12% Fine grained soil: 15 - 30%

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TERMS FOR ROCK MATERIAL STRENGTH AND WEATHERING

CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/ tactile methods.

STRENGTH

Symbol	Term	Point Load Index, $Is_{(50)}$ (MPa) #	Field Guide
EL	Extremely Low	< 0.03	Easily remoulded by hand to a material with soil properties.
VL	Very Low	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30 mm can be broken by finger pressure.
L	Low	0.1 to 0.3	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of pick point; has dull sound under hammer. A piece of core 150 mm long by 50 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
M	Medium	0.3 to 1	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.
H	High	1 to 3	A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken with pick with a single firm blow; rock rings under hammer.
VH	Very High	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
EH	Extremely High	>10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

# Rock Strength Test Results ▼	Point Load Strength Index, $Is_{(50)}$, Axial test (MPa)
◀	Point Load Strength Index, $Is_{(50)}$, Diametral test (MPa)

Relationship between rock strength test result ($Is_{(50)}$) and unconfined compressive strength (UCS) will vary with rock type and strength, and should be determined on a site-specific basis. UCS is typically 10 to 30 x $Is_{(50)}$, but can be as low as 5 MPa.

ROCK MATERIAL WEATHERING

Symbol		Term	Field Guide
RS		Residual Soil	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
EW		Extremely Weathered	Rock is weathered to such an extent that it has soil properties - i.e. it either disintegrates or can be remoulded, in water.
DW	HW	Distinctly Weathered	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores. In some environments it is convenient to subdivide into Highly Weathered and Moderately Weathered, with the degree of alteration typically less for MW.
	MW		
SW		Slightly Weathered	Rock slightly discoloured but shows little or no change of strength relative to fresh rock.
FR		Fresh	Rock shows no sign of decomposition or staining.

ABBREVIATIONS AND DESCRIPTIONS FOR ROCK MATERIAL AND DEFECTS

CLASSIFICATION AND INFERRED STRATIGRAPHY

Rock is broadly classified and described in Borehole Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/ tactile methods.

ROCK MATERIAL DESCRIPTION

Layering

Term	Description
Massive	No layering apparent
Poorly Developed	Layering just visible; little effect on properties
Well Developed	Layering (bedding, foliation, cleavage) distinct; rock breaks more easily parallel to layering

Structure

Term	Spacing (mm)
Thinly laminated	<6
Laminated	6 – 20
Very thinly bedded	20 – 60
Thinly bedded	60 – 200
Medium bedded	200 – 600
Thickly bedded	600 – 2,000
Very thickly bedded	> 2,000

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT TYPES

Defect Type	Abbr.	Description
Joint	JT	Surface of a fracture or parting, formed without displacement, across which the rock has little or no tensile strength. May be closed or filled by air, water or soil or rock substance, which acts as cement.
Bedding Parting	BP	Surface of fracture or parting, across which the rock has little or no tensile strength, parallel or sub-parallel to layering/ bedding. Bedding refers to the layering or stratification of a rock, indicating orientation during deposition, resulting in planar anisotropy in the rock material.
Foliation	FL	Repetitive planar structure parallel to the shear direction or perpendicular to the direction of higher pressure, especially in metamorphic rock, e.g. Schistosity (SH) and Gneissosity.
Contact	CO	The surface between two types or ages of rock.
Cleavage	CL	Cleavage planes appear as parallel, closely spaced and planar surfaces resulting from mechanical fracturing of rock through deformation or metamorphism, independent of bedding.
Sheared Seam/ Zone (Fault)	SS/SZ	Seam or zone with roughly parallel almost planar boundaries of rock substance cut by closely spaced (often <50 mm) parallel and usually smooth or slickensided joints or cleavage planes.
Crushed Seam/ Zone (Fault)	CS/CZ	Seam or zone composed of disoriented usually angular fragments of the host rock substance, with roughly parallel near-planar boundaries. The brecciated fragments may be of clay, silt, sand or gravel sizes or mixtures of these.
Decomposed Seam/ Zone	DS/DZ	Seam of soil substance, often with gradational boundaries, formed by weathering of the rock material in places.
Infilled Seam	IS	Seam of soil substance, usually clay or clayey, with very distinct roughly parallel boundaries, formed by soil migrating into joint or open cavity.
Schistocity	SH	The foliation in schist or other coarse grained crystalline rock due to the parallel arrangement of platy or prismatic mineral grains, such as mica.
Vein	VN	Distinct sheet-like body of minerals crystallised within rock through typically open-space filling or crack-seal growth.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT SHAPE AND ROUGHNESS

Shape	Abbr.	Description	Roughness	Abbr.	Description
Planar	Pl	Consistent orientation	Polished	Pol	Shiny smooth surface
Curved	Cu	Gradual change in orientation	Slickensided	SL	Grooved or striated surface, usually polished
Undulating	Un	Wavy surface	Smooth	S	Smooth to touch. Few or no surface irregularities
Stepped	St	One or more well defined steps	Rough	RF	Many small surface irregularities (amplitude generally <1mm). Feels like fine to coarse sandpaper
Irregular	Ir	Many sharp changes in orientation	Very Rough	VR	Many large surface irregularities, amplitude generally >1mm. Feels like very coarse sandpaper

Orientation: **Vertical Boreholes –** The dip (inclination from horizontal) of the defect.
Inclined Boreholes – The inclination is measured as the acute angle to the core axis.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT COATING

Coating	Abbr.	Description
Clean	CN	No visible coating or infilling
Stain	SN	No visible coating but surfaces are discoloured by staining, often limonite (orange-brown)
Veneer	VNR	A visible coating of soil or mineral substance, usually too thin to measure (< 1 mm); may be patchy

DEFECT APERTURE

Aperture	Abbr.	Description
Closed	CL	Closed.
Open	O	Without any infill material.
Infilled	-	Soil or rock i.e. clay, talc, pyrite, quartz, etc.

APPENDIX D

Field Data Sheets

WATER SAMPLING FIELD SHEET

Environmental Investigations Australia
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Site Address: Ashbury	Job Number: E22851
Client: Ashbury developments	Date: 28/1/16
Field Staff: CW	Sampling Location ID BH1M
Well Location: BH1	Round No: 1

MEDIUM ☑Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date: 20/1/16	Stickup (m): - 0.13 (+ above ground - below ground)
Initial Well Depth (mbgl): 8.4m BGL	Screen Interval (mBTOC): 5.4-8.4
Previous Sampling Date: —	Previous SWL (mBTOC): —

PID READINGS

PID Headspace (ppm): 0	PID Background (ppm): 0
PID Breathing Space (ppm): 0	

PRE PURGE

Total Well Depth (~~mbgl~~): 8.20 m BTOC	Well Head Condition: Good
SWL (mbtoc): 3.850	Water Column (m): 3.35

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mbtoc): none	PSH Visually Confirmed (Bailer): —
PSH Thickness (mm): -	

PURGE AND SAMPLE

Sampling Method ☑Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet: 5	Fill Timer: 27
Pump Pressure Regulator (psi):	Discharge Timer: CP/M2
Weather Conditions: Sunny	Cycle: 3
Pump on time: 8am	Pump off time: 8:30

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
8am	0.5	3.850	25.10	1475	-22.1	3.11	6.1	light brown/yellow, low
	0.5		24.56	1980	-10.3	1.72	5.8	turbidity, no sheen, no
	0.5		23.99	2150	43.2	0.91	5.7	odour
	0.5		23.59	2470	73.5	0.35	5.7	
↓	0.5		23.59	2481	71.2	0.35	5.7	
8:30	0.5	↓	23.59	2478	72.5	0.35	5.7	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

Rev 1 20150604SH
Form OP017

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WATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address: Ashbury
Job Number: E22851
Client: Ashbury Developmens
Date: 28/1/16
Field Staff: CW
Sampling Location ID
Well Location: BH4
Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:
Stickup (m): -0.085 (+ above ground - below ground)
Initial Well Depth (mbgl):
Screen Interval (mBTOC):
Previous Sampling Date:
Previous SWL (mBTOC):

PID READINGS

PID Headspace (ppm): 0
PID Background (ppm): 0
PID Breathing Space (ppm): 0

PRE PURGE

Total Well Depth (mbgl): 8.77 (mbtoc)
Well Head Condition: Good.
SWL (mbtoc): 8.315
Water Column (m): 0.455

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mbtoc): none
PSH Visually Confirmed (Bailer): none
PSH Thickness (mm): none

PURGE AND SAMPLE

Sampling Method ☑Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet: 8.7
Fill Timer: 27
Pump Pressure Regulator (psi): 15-20.
Discharge Timer: CPM2
Weather Conditions: Sunny
Cycle: 3
Pump on time: 8:45
Pump off time: 9:15

WATER QUALITY PARAMETERS

Probe Make and Model:
Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
8:45	0.5	8.315	24.11	1955	22.3	3.21	7.11	Brown, high turbidity,
	0.5		23.42	2844	45.9	2.03	6.34	no sheen, no odour
	0.5		23.11	3611	69.3	1.44	5.94	
	0.5		22.98	2455	78.1	0.46	5.59	
↓	0.5		22.98	4260	77.9	0.46	5.59	
9:15	0.5	↓	22.98	4264	77.9	0.46	5.59	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

Rev 1 20150604SH
Form 0017

WATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address: Ashbury	Job Number: E22851
Client: Ashbury FMBM	Date: 28/1/16
Field Staff: CW	Sampling Location ID BH3
Well Location: BH3	Round No: 1

MEDIUM ☑Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stickup (m): - 0.010 (+ above ground - below ground)
Initial Well Depth (mbgl):	Screen Interval (mBTOC):
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

PID Headspace (ppm): –	PID Background (ppm): –
PID Breathing Space (ppm): –	

PRE PURGE

Total Well Depth (mbgl): x 8.840 (mbtoc)	Well Head Condition: x Good
SWL (mbtoc): x 3.270	Water Column (m): x 5.57

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mbtoc): none	PSH Visually Confirmed (Bailer): none
PSH Thickness (mm): none	

PURGE AND SAMPLE

Sampling Method ☑Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet: 7m	Fill Timer: 27
Pump Pressure Regulator (psi): 15-18	Discharge Timer: CPM2
Weather Conditions: Rain	Cycle: 3
Pump on time: 11am	Pump off time: 11:30am

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV) pH	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
11am	0.5	3.270	25.11	10.471	13.4	0.41	6.5	light yellow/clear,
↓	0.5	↓	24.34		41.1	0.37	6.1	low turbidity, no sheen,
	0.5		27.71	9311	64.1	0.29	6.0	no odour
	0.5		23.36	7363	89.1	0.16	5.7	
	0.5		23.36	7364	94.1	0.16	5.7	
11:30	0.5		23.36	7375	97.9	0.16	~~[illegible]~~	
							5.7	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address: Ashbury
Job Number: E22851

Client: Ashbury Developments
Date: 28/1/16

Field Staff: CW ✓
Sampling Location ID BH7M

Well Location: BH7M
Round No: 1

MEDIUM ☐Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date: 26/1/16
Stickup (m): x 0.10 (+ above ground - below ground)

Initial Well Depth (mbgl): 9.00
Screen Interval (mBTOC): 6-9

Previous Sampling Date: NA
Previous SWL (mBTOC): NA

PID READINGS

PID Headspace (ppm): 0
PID Background (ppm): 0

PID Breathing Space (ppm): 0

PRE PURGE

Total Well Depth (mbgl): ✓ 8.760
Well Head Condition: ✓ Good

SWL (mbtoc): ✓ 7.580
Water Column (m): ✓ 1.180

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mbtoc): none
PSH Visually Confirmed (Bailer): –

PSH Thickness (mm): –

PURGE AND SAMPLE

Sampling Method ☑Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet: 7.7
Fill Timer: 27

Pump Pressure Regulator (psi): 15-20
Discharge Timer: CPM 2

Weather Conditions: Sunny
Cycle: 3

Pump on time: 10 30am
Pump off time: 11am

WATER QUALITY PARAMETERS

Probe Make and Model:
Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (μS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
10:30	0.5	7.580	26.1	3111	-05.1	4.11	6.03	Clear, low turbidity,
|	0.5	|	25.7	3813	10.7	2.09	5.51	no sheen, odour detected
|	0.5	|	24.8	4075	91.1	1.03	5.07	
↓	0.5	|	24.81	4072	103.1	1.02	5.07	
11:00	0.5	↓	24.81	4072	109.9	0.99	5.07	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address: Ashbury
Job Number: E22851
Client: Asbury Developments P/L
Date: 28/1/16
Field Staff: CW
Sampling Location ID BH8
Well Location: BH8
Round No: 1

MEDIUM ☑Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:
Stickup (m): − 0.115 (+ above ground - below ground)
Initial Well Depth (mbgl):
Screen Interval (mBTOC):
Previous Sampling Date:
Previous SWL (mBTOC):

PID READINGS

PID Headspace (ppm): 0
PID Background (ppm): 0
PID Breathing Space (ppm): 0

PRE PURGE

Total Well Depth (mbgl): 8.875
Well Head Condition: Good
SWL (mbtoc): 1.77
Water Column (m): 7.105

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mbtoc): none
PSH Visually Confirmed (Bailer): –
PSH Thickness (mm): –

PURGE AND SAMPLE

Sampling Method ☑Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet: 7.4
Fill Timer: 27
Pump Pressure Regulator (psi):
Discharge Timer: CPM2
Weather Conditions: Sunny.
Cycle: 3
Pump on time: 12:30
Pump off time: 1 pm

WATER QUALITY PARAMETERS

Probe Make and Model:
Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV) P4	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
12:30	0.5	1.77	23.91	2422	-1.1	1.33	7.11	Brown, moderate turbidity
↓	0.5	↓	22.99	4129	10.9	0.99	6.61	no sheen no odour
	0.5		22.83	5133	34.3	0.55	6.40	
	0.5		22.83	5411	40.5	0.38	6.16	
	0.5		22.83	5412	46.9	0.38	6.16	
1pm	0.5	↓	22.83	5413	46.1	0.38	6.16	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

APPENDIX E

Chain of Custody and Sample Receipt Forms

Sheet 1 of 1

Site: 149-163 Milton St, Ashbury

Project No: E22851

Laboratory: SGS

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS					TCLP PAHs	TCLP HM B
BH1_0.1-0.2	1	J, ZLB	15.1.16			✓		✓																
-0.4-0.5																								
↓ -1.0-1.1			↓																					
BH3_0.2-0.3	2		19.1.16					✓																
-1.0-1.1																								
↓ -2.0-2.1			↓																					
BH4_0.4-0.5	3		18.1.16					✓																
-1.0-1.1																								
↓ -2.0-2.1			↓																					
BH5_0.2-0.5	4		20.1.16					✓																
↓ -0.4-0.5			↓																					
BH6_0.2-0.3	5	↓	20.1.16			↓		✓																

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

SGS Alexandria Environmental
SE148342 COC
Received: 25-Jan-2016

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (Envirolab):
Chris Wodden	TP
Print Emmanuel Wodden	Print Tommy
Signature	Signature Tommy
Date 25/1/16	Date 25/1/16 6pm

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Sheet 2 of 9

Site: 149-163 Milton St, Ashbury

Project No: E22851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM A	TCLP HM B
BH6_1.0-1.1		J,ZLB	20.1.16			✓																		
BH7_0.2-0.3	6		19.1.16					✓																
-1.0-1.1	7								✓															
-2.0-1.1																								
-3.0-3.1	8								✓															
-4.0-4.1																								
↓ -5.0-5.1			↓																					
BH8_0.2-03	9		21.1.16					✓																
↓ -1.0-1.1			↓																					
BH9_0.2-0.3	10		~~20~~21.1.16					✓																
-0.7-0.8																								
↓ -1.2-1.3		↓	↓			↓																		

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (SGS):
Chris Woelders	TP
Print Emmanuel Woelders	Print TOMMY
Signature EWoelders	Signature Tommy P
Date 25.1.16	Date 25/1/16 6pm

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

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PYRMONT NSW 2009
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lab@eiaustralia.com.au

Sheet 3 of 9

Site: 149-163 Milton St, Ashbury

Project No: E22851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	Sample Matrix: SOIL	Sample Matrix: OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM ^{A} /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM ^{A} /TRH/BTEX/PAHs	HM ^{A} /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM ^{A}	TCLP HM ^{B}
BH9_1.7-1.8	11	J, ZLB	20&21.1.16			✓			✓															
2.9-3.0	12	↓	↓			↓			✓															
3.1-3.2		↓	↓			↓																		
4.0-4.1		↓	↓			↓																		
BH10_0.2-0.3	13	↓	↓			↓		✓																
-0.6-0.7		↓	↓			↓																		
-1.1-1.2	14	↓	↓			↓			✓															
-1.2-1.3		↓	↓			↓																		
-2.2-2.3		↓	↓			↓																		
BH11_0.2-0.3	15	↓	↓			↓		✓																
-0.7-0.8		↓	↓			↓																		
-1.2-1.3	16	↓	↓			↓			✓															

Comments

HM ^{A}
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM ^{B}
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (SGS):
Chris Woelders	TP
Print Emmanuel Woelders	Print TOMMY
Signature	Signature Tommy P
Date 25.1.16	Date 25/1/16 6pm

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
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lab@eiaustralia.com.au

Sheet 4 of 9

Site: 149-163 Milton St, Ashbury

Project No: E22851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM^{A} /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM^{A} /TRH/BTEX/PAHs	HM^{A} /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM^{A}	TCLP HM^{B}
BH11_2.2-2.3		J,ZLB	20&21.1.16			✓																		
BH12-0.2-0.3	17	↓	↓			↓		✓																
-1.2-1.3	18	↓	↓			↓			✓															
-1.8-1.9		↓	↓			↓																		
-2.8-2.9		↓	↓			↓																		

Comments

HM^{A}
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM^{B}
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (SGS):
Chris Woelders	TP
Print Emmanuel Woelders	Print Tommy
Signature	Signature
Date 25/1/16	Date 25/1/16

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

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lab@eiaustralia.com.au

Sheet 5 of 9

Site: 149-163 Milton St, ~~Ash~~ Ashbury

Project No: E22851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM A	TCLP HM B
BH13_0.2-0.3	19	J, ZLB	20/21.1.16			✓		✓																
-0 6-0.7																								
_1.6-1.7																								
BH14_0.2-0.3	20							✓																
_0.6-0.7																								
-1.6-1.7																								
BH15_0.2-0.3	21							✓																
-0.6-0.7																								
_1.1-1.2	22								✓															
_1.9-2.0																								
BH16_0.2-0.3	23							✓																
-0.8-0.9						✓																		

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (SGS):
Chris Woelders	TP
Print Emmanuel Woelders	Print TOMMY
Signature EWoeld	Signature Tommy P
Date 25/1/16	Date 25/1/16 6pm

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

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lab@eiaustralia.com.au

Sheet 6 of 9

Site: 149-163 Milton St, Albury NSW

Project No: E22851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM A	TCLP HM B
BH16_1.8-1.9		J, ZLB	20/21.1.16			✓																		
BH17_0.2-0.3	24							✓																
-0.5-0.6																								
↓ -1.5-1.6																								
BH18_0.2-0.3	25							✓																
↓ -1.2-1.3																								
BH19_0.2-0.3	26							✓																
-1.2-1.3																								
-1.7-1.8	27								✓															
-2.0-2.1																								
↓ -3.0-3.1																								
BH20_0.2-0.3	28	↓	↓			↓		✓																

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI): Chris Woelders
Print: Emmanuel Woelders
Signature:
Date: 25/1/16

Received by (SGS): TP
Print: Tommy
Signature:
Date: 25/1/16 6pm

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
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Ph: 9516 0722
lab@eiaustralia.com.au

Sheet 1 of 1

Site: 149-163 Milton St, Asbury

Project No: E12851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix			Analysis																
			Date	Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM $^{\underline{A}}$ /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM $^{\underline{A}}$ /TRH/BTEX/PAHs	HM $^{\underline{A}}$ /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM $^{\underline{A}}$	TCLP HM $^{\underline{B}}$
BH20_0.7-0.8	29	J,ZLB	20/21.1.16			✓			✓															
-1.4-1.5		↓	↓			↓																		
↓ -2.4-2.5		↓	↓			↓																		
BH21_0.2-0.3	30	↓	↓			↓		✓																
-0.8-0.9	31	↓	↓			↓			✓															
↓ -1.8-1.9		↓	↓			↓																		
BH22_0.2-0.3	32	↓	↓			↓		✓																
-0.8-0.9		↓	↓			↓																		
↓ -1.8-1.9		↓	↓			↓																		
BH23_0.2-0.3	33	↓	↓			↓		✓																
-1.1-1.2	34	↓	↓			↓			✓															
↓ -1.9-2.0		↓	↓			↓																		

Comments

HM $^{\underline{A}}$
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM $^{\underline{B}}$
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI): Chris Woelders
Print: Emmanuel Woelders
Signature:
Date: 25/1/16

Received by (SGS): TP
Print: Tommy
Signature: Tommy P
Date: 25/1/16 6pm

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
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PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Sheet 8 of 9

Site: 149-163 Milton St, Asbury NSW

Project No: E22851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix			Analysis																TCLP PAHs	TCLP HM A	TCLP HM B
			Date	Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS								
BH23-2.7-2.8		J, ZLB	2021.1.16			✓																				
BH23_3.6-3.7																										
BH24_0.2-0.3	35							✓																		
-0.6-0.7																										
↓ -1.6-1.7																										
BH25_0.1-0.2	36							✓																		
↓ -0.4-0.5																										
BH26_0.1-0.2	37							✓																		
-0.6-0.7																										
↓ -1.2-1.3	38								✓																	
BH27_0.2-0.3	39							✓																		
BH28_0.3-0.4	40	↓	↓			✓		✓																		

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☐ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Sampler's Name (EI):	Received by (SGS):
Chris Woelders	TP
Print Emmanuel Woelders	*Print* Tommy
Signature	*Signature* Tommy P.
Date 25/1/16	*Date* 25/1/16 6pm

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC July 2014 FORM v.2 - SGS

Sheet 9 of 9

Site: 149-163 Milton St, Ashbury NSW

Project No: E22851

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix			Analysis																	
			Date	Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	BTEX			TCLP PAHs	TCLP HM A	TCLP HM B	
BH129-0.2-0.3	41	J, ZLB	20&21.1.16			✓		✓																	
↓ -0.8-0.9		↓	↓			↓																			
↓ -1.4-1.5		↓	↓			↓																			
QD1	42	↓	↓			↓				✓															
QD2	43	↓	↓			↓				✓															
QR1	44	S,P,VC	15-21.1.16		✓					✓															
QTB1	45	J	↓			✓													✓						
QTS1	46	VC	↓			✓													✓						

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (SGS):
Chris Woelders	TP
Print Emmanuel Woelders	Print Tommy
Signature E Woelders	Signature Tommy P.
Date 25/1/16	Date 25/1/16 6pm

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE148342

CLIENT DETAILS

Contact	Emmanuel Woelders
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	emmanuel.woelders@eiaustralia.com.au
Project	**E22851 149-163 Milton St Ashbury**
Order Number	**E22851**
Samples	46

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 25/1/2016
Report Due	Tue 2/2/2016
SGS Reference	**SE148342**

SUBMISSION DETAILS

This is to confirm that 46 samples were received on Monday 25/1/2016. Results are expected to be ready by Tuesday 2/2/2016. Please quote SGS reference SE148342 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	45 soils, 1 water	Type of documentation received	COC
Date documentation received	25/1/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	7.5°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

Sample BH11_1.2-1.3 received without ziplock bag. .A separate portion was not supplied for Asbestos analysis . A sub-sample will be used from the jar provided.
Sample BH9_0.2-0.3 received labelled as BH9_0.3-0.4.
Sample BH27_0.2-0.3 received labelled as BH27_0.3-0.4.

SAMPLE RECEIPT ADVICE

CLIENT DETAILS

Client Environmental Investigations

Project E22851 149-163 Milton St Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Metals in Soil by ICPOES	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1_0.1-0.2	28	13	25	11	7	10	12	8
002	BH3_0.2-0.3	28	13	25	11	7	10	12	8
003	BH4_0.4-0.5	28	13	25	11	7	10	12	8
004	BH5_0.2-0.5	28	13	25	11	7	10	12	8
005	BH6_0.2-0.3	28	13	25	11	7	10	12	8
006	BH7_0.2-0.3	28	13	25	11	7	10	12	8
007	BH7_1.0-1.1	-	-	25	-	7	10	12	8
008	BH7_3.0-3.1	-	-	25	-	7	10	12	8
009	BH8_0.2-0.3	28	13	25	11	7	10	12	8
010	BH9_0.2-0.3	28	13	25	11	7	10	12	8
011	BH9_1.7-1.8	-	-	25	-	7	10	12	8
012	BH9_2.9-3.0	-	-	25	-	7	10	12	8
013	BH10_0.2-0.3	28	13	25	11	7	10	12	8
014	BH10_1.1-1.2	-	-	25	-	7	10	12	8
015	BH11_0.2-0.3	28	13	25	11	7	10	12	8
016	BH11_1.2-1.3	-	-	25	-	7	10	12	8
017	BH12_0.2-0.3	28	13	25	11	7	10	12	8
018	BH12_1.2-1.3	-	-	25	-	7	10	12	8
019	BH13_0.2-0.3	28	13	25	11	7	10	12	8
020	BH14_0.2-0.3	28	13	25	11	7	10	12	8
021	BH15_0.2-0.3	28	13	25	11	7	10	12	8
022	BH15_1.1-1.2	-	-	25	-	7	10	12	8
023	BH16_0.2-0.3	28	13	25	11	7	10	12	8
024	BH17_0.2-0.3	28	13	25	11	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

CLIENT DETAILS

Client Environmental Investigations

Project E22851 149-163 Milton St Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Metals in Soil by ICPOES	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	BH18_0.2-0.3	28	13	25	11	7	10	12	8
026	BH19_0.2-0.3	28	13	25	11	7	10	12	8
027	BH19_1.7-1.8	-	-	25	-	7	10	12	8
028	BH20_0.2-0.3	28	13	25	11	7	10	12	8
029	BH20_0.7-0.8	-	-	25	-	7	10	12	8
030	BH21_0.2-0.3	28	13	25	11	7	10	12	8
031	BH21_0.8-0.9	-	-	25	-	7	10	12	8
032	BH22_0.2-0.3	28	13	25	11	7	10	12	8
033	BH23_0.2-0.3	28	13	25	11	7	10	12	8
034	BH23_1.1-1.2	-	-	25	-	7	10	12	8
035	BH24_0.2-0.3	28	13	25	11	7	10	12	8
036	BH25_0.1-0.2	28	13	25	11	7	10	12	8
037	BH26_0.1-0.2	28	13	25	11	7	10	12	8
038	BH26_1.2-1.3	-	-	25	-	7	10	12	8
039	BH27_0.2-0.3	28	13	25	11	7	10	12	8
040	BH28_0.3-0.4	28	13	25	11	7	10	12	8
041	BH29_0.2-0.3	28	13	25	11	7	10	12	8
042	QD1	-	-	-	-	7	10	12	8
043	QD2	-	-	-	-	7	10	12	8
045	QTB1	-	-	-	-	-	-	12	-
046	QTS1	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
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Please indicate as soon as possible should your request differ from these details .
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SAMPLE RECEIPT ADVICE

SE148342

CLIENT DETAILS

Client Environmental Investigations

Project E22851 149-163 Milton St Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH1_0.1-0.2	2	1	1
002	BH3_0.2-0.3	2	1	1
003	BH4_0.4-0.5	2	1	1
004	BH5_0.2-0.5	2	1	1
005	BH6_0.2-0.3	2	1	1
006	BH7_0.2-0.3	2	1	1
007	BH7_1.0-1.1	-	1	1
008	BH7_3.0-3.1	-	1	1
009	BH8_0.2-0.3	2	1	1
010	BH9_0.2-0.3	2	1	1
011	BH9_1.7-1.8	-	1	1
012	BH9_2.9-3.0	-	1	1
013	BH10_0.2-0.3	2	1	1
014	BH10_1.1-1.2	-	1	1
015	BH11_0.2-0.3	2	1	1
016	BH11_1.2-1.3	-	1	1
017	BH12_0.2-0.3	2	1	1
018	BH12_1.2-1.3	-	1	1
019	BH13_0.2-0.3	2	1	1
020	BH14_0.2-0.3	2	1	1
021	BH15_0.2-0.3	2	1	1
022	BH15_1.1-1.2	-	1	1
023	BH16_0.2-0.3	2	1	1
024	BH17_0.2-0.3	2	1	1

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE148342

CLIENT DETAILS

Client Environmental Investigations

Project E22851 149-163 Milton St Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
025	BH18_0.2-0.3	2	1	1	-	-	-
026	BH19_0.2-0.3	2	1	1	-	-	-
027	BH19_1.7-1.8	-	1	1	-	-	-
028	BH20_0.2-0.3	2	1	1	-	-	-
029	BH20_0.7-0.8	-	1	1	-	-	-
030	BH21_0.2-0.3	2	1	1	-	-	-
031	BH21_0.8-0.9	-	1	1	-	-	-
032	BH22_0.2-0.3	2	1	1	-	-	-
033	BH23_0.2-0.3	2	1	1	-	-	-
034	BH23_1.1-1.2	-	1	1	-	-	-
035	BH24_0.2-0.3	2	1	1	-	-	-
036	BH25_0.1-0.2	2	1	1	-	-	-
037	BH26_0.1-0.2	2	1	1	-	-	-
038	BH26_1.2-1.3	-	1	1	-	-	-
039	BH27_0.2-0.3	2	1	1	-	-	-
040	BH28_0.3-0.4	2	1	1	-	-	-
041	BH29_0.2-0.3	2	1	1	-	-	-
042	QD1	-	1	1	-	-	-
043	QD2	-	1	1	-	-	-
044	QR1	-	-	-	9	12	8
045	QTB1	-	-	1	-	-	-

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE148342

CLIENT DETAILS

Client Environmental Investigations

Project E22851 149-163 Milton St Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
044	QR1	1	7

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 149-163 Milton St, Ashbury

Project No: E22851

Laboratory: Envirolab Services
12 Ashley Street
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM^{A} /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM^{A} /TRH/BTEX/PAHs	HM^{A} /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS					TCLP PAHs	TCLP HM^{B}
QT1	1	J	20 21.1.16			✓				✓														
QT2	2	↓	↓			✓				✓														
E22581 on the jar																								

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 140607
Date Received: 25/1/16
Time Received: 16:30
Received by: PT
Temp: [✓ Cool]/Ambient
Cooling: Ice/[✓ Icepack]
Security: [✓ Intact]/Broken/None

Comments

HM^{A}
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM^{B}
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Name (EI):	Received by (Envirolab):
Emmanuel Woldeas	
Print: E Wolde	Print: PRATISTHA
Signature:	Signature: PT
25/1/16	
Date	Date: 25/1/16

Sampler's Comments:

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Environmental Investigations
Attention	Emmanuel Woelders

Sample Login Details	
Your Reference	E22851, Ashbury
Envirolab Reference	**140607**
Date Sample Received	25/01/2016
Date Instructions Received	25/01/2016
Date Results Expected to be Reported	**02/02/2016**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 Soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	11.8
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

Aileen Hie	**Jacinta Hurst**
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*Acid Extractable metals in soil*
QT1	✓	✓	✓
QT2	✓	✓	✓

Sheet 1 of 1

Site: 149-163 Milton St, Ashbury NSW

Project No: E22851

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

			Sampling		Sample Matrix			Analysis																
Sample ID	Laboratory ID	Container Type	Date	Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	BTEX			TCLP PAHs	TCLP HM A	TCLP HM B
BH1M	1	S,P,VC	28/1/16		✓				✓					✓										
BH3M	2	↓	29/1/16		↓				↓					↓										
4M	3	↓	28/1/16		↓				↓					↓										
7M	4	↓	↓		↓				↓					↓										
↓8M	5	↓	↓		↓				↓					↓										
GWQD1	6	↓	28/29/1/16		↓					✓									✓					
GWQTB1	7	VC	↓		↓														✓					
GWQTS1	8	VC	↓		↓																			
GWQR1	9	S,P,VC	↓		↓					✓														

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☐ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

SGS Alexandria Environmental
SE148537 COC
Received: 02 – Feb – 2016

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (SGS):
Print Emmanuel Woelders	Print Suba
Signature E. Woelders	Signature
Date 2/2/16	Date 02/02/16 @ 10:25

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE148537

CLIENT DETAILS

Contact	Emmanuel Woelders
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	Emmanuel.Woelders@eiaustralia.com.au
Project	**E22851 - 149-163 Milton St, Ashbury NSW**
Order Number	**E22851**
Samples	9

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 2/2/2016
Report Due	Tue 9/2/2016
SGS Reference	**SE148537**

SUBMISSION DETAILS

This is to confirm that 9 samples were received on Tuesday 2/2/2016. Results are expected to be ready by Tuesday 9/2/2016. Please quote SGS reference SE148537 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	9 Waters	Type of documentation received	COC
Date documentation received	2/2/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	9.9°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

Trip spike and trip blank analysed for BTEX.

SAMPLE RECEIPT ADVICE

SE148537

CLIENT DETAILS

Client: Environmental Investigations

Project: E22851 - 149-163 Milton St, Ashbury NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH1M	1	22	7	9	79	8
002	BH3M	1	22	7	9	79	8
003	BH4M	1	22	7	9	79	8
004	BH7M	1	22	7	9	79	8
005	BH8M	1	22	7	9	79	8
006	GWQD1	1	-	7	9	12	8
007	GWQTB1	-	-	-	-	12	-
008	GWQTS1	-	-	-	-	12	-
009	GWQR1	1	-	7	9	12	8

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 149-163 Milton St, Ashbury

Project No: E22851

Laboratory: Envirolab Services
12 Ashley Street
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix			Analysis																
			Date	Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM^{A} /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM^{A} /TRH/BTEX/PAHs	HM^{A} /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS					TCLP PAHs	TCLP HM^{B}
GWQT1	1	S, P, VC	28/2/16		✓					✓														

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 140967

Date Received: 2/2/16
Time Received: 12.40
Received by: LSB
Temp: [✓ Cool]/Ambient
Cooling: Ice/[✓ Icepack]
Security: [✓ Intact]/Broken/None

Comments

HM^{A}
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
ZinC

HM^{B}
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

☑ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Sampler's Name (EI):	Received by (Envirolab):
Print Emmanuel Wolde	Print LSB
Signature	Signature
Date 2/2/16	Date 2/2/16

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Environmental Investigations
Attention	Emmanuel Woelders

Sample Login Details	
Your Reference	E22851, Ashbury
Envirolab Reference	**140967**
Date Sample Received	02/02/2016
Date Instructions Received	02/02/2016
Date Results Expected to be Reported	**09/02/2016**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on receipt (°C)	14.0
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

Aileen Hie	**Jacinta Hurst**
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*vTRH(C6-C10)/BTEXN in Water*	*svTRH (C10-C40) in Water*	*HM in water - dissolved*
GWQT1	✓	✓	✓

APPENDIX F
Laboratory Analytical Reports

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Emmanuel Woelders
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	emmanuel.woelders@eiaustralia.com.au
Project	**E22851 149-163 Milton St Ashbury**
Order Number	**E22851**
Samples	46

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE148342 R0**
Date Received	25/1/2016
Date Reported	4/2/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.

Sample #3: 1-3mm length fibre bundle found loose in sample.
Sample #26: 2-6mm length fibre bundles x5 found loose in sample.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

S. Raveendra.

Ravee Sivasubramaniam
Asbestos Analyst/Hygiene Team Leader

VOC's in Soil [AN433/AN434] Tested: 28/1/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.001**	**SE148342.002**	**SE148342.003**	**SE148342.004**	**SE148342.005**
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

			BH7_0.2-0.3	BH7_1.0-1.1	BH7_3.0-3.1	BH8_0.2-0.3	BH9_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	19/1/2016	19/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.006**	**SE148342.007**	**SE148342.008**	**SE148342.009**	**SE148342.010**
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

			BH9_1.7-1.8	BH9_2.9-3.0	BH10_0.2-0.3	BH10_1.1-1.2	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.011**	**SE148342.012**	**SE148342.013**	**SE148342.014**	**SE148342.015**
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

			BH11_1.2-1.3	BH12_0.2-0.3	BH12_1.2-1.3	BH13_0.2-0.3	BH14_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.016**	**SE148342.017**	**SE148342.018**	**SE148342.019**	**SE148342.020**
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

VOC's in Soil [AN433/AN434] Tested: 28/1/2016 (continued)

			BH15_0.2-0.3	BH15_1.1-1.2	BH16_0.2-0.3	BH17_0.2-0.3	BH18_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.021	SE148342.022	SE148342.023	SE148342.024	SE148342.025
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1

			BH19_0.2-0.3	BH19_1.7-1.8	BH20_0.2-0.3	BH20_0.7-0.8	BH21_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.026	SE148342.027	SE148342.028	SE148342.029	SE148342.030
Benzene	mg/kg	0.1	0.2	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	0.2	0.2	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	0.1	0.2	<0.1	<0.1	<0.1

			BH21_0.8-0.9	BH22_0.2-0.3	BH23_0.2-0.3	BH23_1.1-1.2	BH24_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.031	SE148342.032	SE148342.033	SE148342.034	SE148342.035
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1

			BH25_0.1-0.2	BH26_0.1-0.2	BH26_1.2-1.3	BH27_0.2-0.3	BH28_0.3-0.4
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.036	SE148342.037	SE148342.038	SE148342.039	SE148342.040
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1	<0.1

VOC's in Soil [AN433/AN434] Tested: 28/1/2016 (continued)

			BH29_0.2-0.3	QD1	QD2	QTB1	QTS1
			SOIL - 21/1/2016	SOIL - 21/1/2016	SOIL - 21/1/2016	SOIL - 21/1/2016	SOIL - 21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.041**	**SE148342.042**	**SE148342.043**	**SE148342.045**	**SE148342.046**
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[95%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[88%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[84%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	[82%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[81%]
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-

Volatile Petroleum Hydrocarbons in Soil [AN433/AN434/AN410] Tested: 28/1/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.001**	**SE148342.002**	**SE148342.003**	**SE148342.004**	**SE148342.005**
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

			BH7_0.2-0.3	BH7_1.0-1.1	BH7_3.0-3.1	BH8_0.2-0.3	BH9_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	19/1/2016	19/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.006**	**SE148342.007**	**SE148342.008**	**SE148342.009**	**SE148342.010**
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

			BH9_1.7-1.8	BH9_2.9-3.0	BH10_0.2-0.3	BH10_1.1-1.2	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.011**	**SE148342.012**	**SE148342.013**	**SE148342.014**	**SE148342.015**
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

			BH11_1.2-1.3	BH12_0.2-0.3	BH12_1.2-1.3	BH13_0.2-0.3	BH14_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.016**	**SE148342.017**	**SE148342.018**	**SE148342.019**	**SE148342.020**
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

			BH15_0.2-0.3	BH15_1.1-1.2	BH16_0.2-0.3	BH17_0.2-0.3	BH18_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.021**	**SE148342.022**	**SE148342.023**	**SE148342.024**	**SE148342.025**
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

			BH19_0.2-0.3	BH19_1.7-1.8	BH20_0.2-0.3	BH20_0.7-0.8	BH21_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.026**	**SE148342.027**	**SE148342.028**	**SE148342.029**	**SE148342.030**
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	0.2	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

Volatile Petroleum Hydrocarbons in Soil [AN433/AN434/AN410] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH21_0.8-0.9 SOIL - 21/1/2016 SE148342.031	BH22_0.2-0.3 SOIL - 21/1/2016 SE148342.032	BH23_0.2-0.3 SOIL - 21/1/2016 SE148342.033	BH23_1.1-1.2 SOIL - 21/1/2016 SE148342.034	BH24_0.2-0.3 SOIL - 21/1/2016 SE148342.035
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH25_0.1-0.2 SOIL - 21/1/2016 SE148342.036	BH26_0.1-0.2 SOIL - 21/1/2016 SE148342.037	BH26_1.2-1.3 SOIL - 21/1/2016 SE148342.038	BH27_0.2-0.3 SOIL - 21/1/2016 SE148342.039	BH28_0.3-0.4 SOIL - 21/1/2016 SE148342.040
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH29_0.2-0.3 SOIL - 21/1/2016 SE148342.041	QD1 SOIL - 21/1/2016 SE148342.042	QD2 SOIL - 21/1/2016 SE148342.043
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 28/1/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.001**	**SE148342.002**	**SE148342.003**	**SE148342.004**	**SE148342.005**
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**78**	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	**210**	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	**210**	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	**150**	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	**290**	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	**360**	<210	<210	<210

			BH7_0.2-0.3	BH7_1.0-1.1	BH7_3.0-3.1	BH8_0.2-0.3	BH9_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	19/1/2016	19/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.006**	**SE148342.007**	**SE148342.008**	**SE148342.009**	**SE148342.010**
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

			BH9_1.7-1.8	BH9_2.9-3.0	BH10_0.2-0.3	BH10_1.1-1.2	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.011**	**SE148342.012**	**SE148342.013**	**SE148342.014**	**SE148342.015**
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**130**	**66**	<45	<45	**480**
TRH C29-C36	mg/kg	45	**69**	<45	<45	<45	**320**
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**200**	**94**	<90	<90	**760**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	**200**	<110	<110	<110	**800**
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	**800**

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH11_1.2-1.3 SOIL - 21/1/2016 SE148342.016	BH12_0.2-0.3 SOIL - 21/1/2016 SE148342.017	BH12_1.2-1.3 SOIL - 21/1/2016 SE148342.018	BH13_0.2-0.3 SOIL - 21/1/2016 SE148342.019	BH14_0.2-0.3 SOIL - 21/1/2016 SE148342.020
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	52	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH15_0.2-0.3 SOIL - 21/1/2016 SE148342.021	BH15_1.1-1.2 SOIL - 21/1/2016 SE148342.022	BH16_0.2-0.3 SOIL - 21/1/2016 SE148342.023	BH17_0.2-0.3 SOIL - 21/1/2016 SE148342.024	BH18_0.2-0.3 SOIL - 21/1/2016 SE148342.025
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	57	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	89	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	120	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	150	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH19_0.2-0.3 SOIL - 21/1/2016 SE148342.026	BH19_1.7-1.8 SOIL - 21/1/2016 SE148342.027	BH20_0.2-0.3 SOIL - 21/1/2016 SE148342.028	BH20_0.7-0.8 SOIL - 21/1/2016 SE148342.029	BH21_0.2-0.3 SOIL - 21/1/2016 SE148342.030
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	82	72	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	110	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH21_0.8-0.9 SOIL - 21/1/2016 SE148342.031	BH22_0.2-0.3 SOIL - 21/1/2016 SE148342.032	BH23_0.2-0.3 SOIL - 21/1/2016 SE148342.033	BH23_1.1-1.2 SOIL - 21/1/2016 SE148342.034	BH24_0.2-0.3 SOIL - 21/1/2016 SE148342.035
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH25_0.1-0.2 SOIL - 21/1/2016 SE148342.036	BH26_0.1-0.2 SOIL - 21/1/2016 SE148342.037	BH26_1.2-1.3 SOIL - 21/1/2016 SE148342.038	BH27_0.2-0.3 SOIL - 21/1/2016 SE148342.039	BH28_0.3-0.4 SOIL - 21/1/2016 SE148342.040
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**84**	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	**260**	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	**260**	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	**150**	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	**350**	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	**350**	<210

PARAMETER	UOM	LOR	BH29_0.2-0.3 SOIL - 21/1/2016 SE148342.041	QD1 SOIL - 21/1/2016 SE148342.042	QD2 SOIL - 21/1/2016 SE148342.043
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/1/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.001**	**SE148342.002**	**SE148342.003**	**SE148342.004**	**SE148342.005**
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.2	0.2	<0.1	0.1	0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.4	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	0.3	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.3	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	1.9	<0.8	<0.8	<0.8	<0.8

			BH7_0.2-0.3	BH7_1.0-1.1	BH7_3.0-3.1	BH8_0.2-0.3	BH9_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	19/1/2016	19/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.006**	**SE148342.007**	**SE148342.008**	**SE148342.009**	**SE148342.010**
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/1/2016 (continued)

			BH9_1.7-1.8	BH9_2.9-3.0	BH10_0.2-0.3	BH10_1.1-1.2	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.011**	**SE148342.012**	**SE148342.013**	**SE148342.014**	**SE148342.015**
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

			BH11_1.2-1.3	BH12_0.2-0.3	BH12_1.2-1.3	BH13_0.2-0.3	BH14_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.016**	**SE148342.017**	**SE148342.018**	**SE148342.019**	**SE148342.020**
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH15_0.2-0.3 SOIL - 21/1/2016 SE148342.021	BH15_1.1-1.2 SOIL - 21/1/2016 SE148342.022	BH16_0.2-0.3 SOIL - 21/1/2016 SE148342.023	BH17_0.2-0.3 SOIL - 21/1/2016 SE148342.024	BH18_0.2-0.3 SOIL - 21/1/2016 SE148342.025
Naphthalene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.2	<0.1	0.2	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.4	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.3	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	1.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH19_0.2-0.3 SOIL - 21/1/2016 SE148342.026	BH19_1.7-1.8 SOIL - 21/1/2016 SE148342.027	BH20_0.2-0.3 SOIL - 21/1/2016 SE148342.028	BH20_0.7-0.8 SOIL - 21/1/2016 SE148342.029	BH21_0.2-0.3 SOIL - 21/1/2016 SE148342.030
Naphthalene	mg/kg	0.1	0.2	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	0.1	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	0.1	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.3	0.2	<0.1	0.2	0.3
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.1	<0.1	<0.1	0.2	0.2
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	0.2	0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	0.2	0.2
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1	0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	0.2	<0.2
Total PAH (18)	mg/kg	0.8	0.8	<0.8	<0.8	1.2	0.9

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/1/2016 (continued)

			BH21_0.8-0.9	BH22_0.2-0.3	BH23_0.2-0.3	BH23_1.1-1.2	BH24_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.031	SE148342.032	SE148342.033	SE148342.034	SE148342.035
Naphthalene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0.5	0.1	0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	1.4	<0.8	<0.8

			BH25_0.1-0.2	BH26_0.1-0.2	BH26_1.2-1.3	BH27_0.2-0.3	BH28_0.3-0.4
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.036	SE148342.037	SE148342.038	SE148342.039	SE148342.040
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	0.1	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	0.1	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.2	0.2	<0.1	0.1	0.3
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	0.2
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH29_0.2-0.3 SOIL - 21/1/2016 SE148342.041
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1
Pyrene	mg/kg	0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 28/1/2016

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 15/1/2016 SE148342.001	BH3_0.2-0.3 SOIL - 19/1/2016 SE148342.002	BH4_0.4-0.5 SOIL - 18/1/2016 SE148342.003	BH5_0.2-0.5 SOIL - 20/1/2016 SE148342.004	BH6_0.2-0.3 SOIL - 20/1/2016 SE148342.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH7_0.2-0.3 SOIL - 19/1/2016 SE148342.006	BH8_0.2-0.3 SOIL - 21/1/2016 SE148342.009	BH9_0.2-0.3 SOIL - 21/1/2016 SE148342.010	BH10_0.2-0.3 SOIL - 21/1/2016 SE148342.013	BH11_0.2-0.3 SOIL - 21/1/2016 SE148342.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH12_0.2-0.3 SOIL - 21/1/2016 SE148342.017	BH13_0.2-0.3 SOIL - 21/1/2016 SE148342.019	BH14_0.2-0.3 SOIL - 21/1/2016 SE148342.020	BH15_0.2-0.3 SOIL - 21/1/2016 SE148342.021	BH16_0.2-0.3 SOIL - 21/1/2016 SE148342.023
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 21/1/2016 SE148342.024	BH18_0.2-0.3 SOIL - 21/1/2016 SE148342.025	BH19_0.2-0.3 SOIL - 21/1/2016 SE148342.026	BH20_0.2-0.3 SOIL - 21/1/2016 SE148342.028	BH21_0.2-0.3 SOIL - 21/1/2016 SE148342.030
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH22_0.2-0.3 SOIL - 21/1/2016 SE148342.032	BH23_0.2-0.3 SOIL - 21/1/2016 SE148342.033	BH24_0.2-0.3 SOIL - 21/1/2016 SE148342.035	BH25_0.1-0.2 SOIL - 21/1/2016 SE148342.036	BH26_0.1-0.2 SOIL - 21/1/2016 SE148342.037
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH27_0.2-0.3 SOIL - 21/1/2016 SE148342.039	BH28_0.3-0.4 SOIL - 21/1/2016 SE148342.040	BH29_0.2-0.3 SOIL - 21/1/2016 SE148342.041
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	1.4	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	2.1	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 28/1/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	UOM	LOR	SE148342.001	SE148342.002	SE148342.003	SE148342.004	SE148342.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

			BH7_0.2-0.3	BH8_0.2-0.3	BH9_0.2-0.3	BH10_0.2-0.3	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.006	SE148342.009	SE148342.010	SE148342.013	SE148342.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

			BH12_0.2-0.3	BH13_0.2-0.3	BH14_0.2-0.3	BH15_0.2-0.3	BH16_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.017	SE148342.019	SE148342.020	SE148342.021	SE148342.023
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

OP Pesticides in Soil [AN400/AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 21/1/2016 SE148342.024	BH18_0.2-0.3 SOIL - 21/1/2016 SE148342.025	BH19_0.2-0.3 SOIL - 21/1/2016 SE148342.026	BH20_0.2-0.3 SOIL - 21/1/2016 SE148342.028	BH21_0.2-0.3 SOIL - 21/1/2016 SE148342.030
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	BH22_0.2-0.3 SOIL - 21/1/2016 SE148342.032	BH23_0.2-0.3 SOIL - 21/1/2016 SE148342.033	BH24_0.2-0.3 SOIL - 21/1/2016 SE148342.035	BH25_0.1-0.2 SOIL - 21/1/2016 SE148342.036	BH26_0.1-0.2 SOIL - 21/1/2016 SE148342.037
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	BH27_0.2-0.3 SOIL - 21/1/2016 SE148342.039	BH28_0.3-0.4 SOIL - 21/1/2016 SE148342.040	BH29_0.2-0.3 SOIL - 21/1/2016 SE148342.041
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2

PCBs in Soil [AN400/AN420] Tested: 28/1/2016

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 15/1/2016 SE148342.001	BH3_0.2-0.3 SOIL - 19/1/2016 SE148342.002	BH4_0.4-0.5 SOIL - 18/1/2016 SE148342.003	BH5_0.2-0.5 SOIL - 20/1/2016 SE148342.004	BH6_0.2-0.3 SOIL - 20/1/2016 SE148342.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH7_0.2-0.3 SOIL - 19/1/2016 SE148342.006	BH8_0.2-0.3 SOIL - 21/1/2016 SE148342.009	BH9_0.2-0.3 SOIL - 21/1/2016 SE148342.010	BH10_0.2-0.3 SOIL - 21/1/2016 SE148342.013	BH11_0.2-0.3 SOIL - 21/1/2016 SE148342.015
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH12_0.2-0.3 SOIL - 21/1/2016 SE148342.017	BH13_0.2-0.3 SOIL - 21/1/2016 SE148342.019	BH14_0.2-0.3 SOIL - 21/1/2016 SE148342.020	BH15_0.2-0.3 SOIL - 21/1/2016 SE148342.021	BH16_0.2-0.3 SOIL - 21/1/2016 SE148342.023
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PCBs in Soil [AN400/AN420] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 21/1/2016 SE148342.024	BH18_0.2-0.3 SOIL - 21/1/2016 SE148342.025	BH19_0.2-0.3 SOIL - 21/1/2016 SE148342.026	BH20_0.2-0.3 SOIL - 21/1/2016 SE148342.028	BH21_0.2-0.3 SOIL - 21/1/2016 SE148342.030
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH22_0.2-0.3 SOIL - 21/1/2016 SE148342.032	BH23_0.2-0.3 SOIL - 21/1/2016 SE148342.033	BH24_0.2-0.3 SOIL - 21/1/2016 SE148342.035	BH25_0.1-0.2 SOIL - 21/1/2016 SE148342.036	BH26_0.1-0.2 SOIL - 21/1/2016 SE148342.037
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH27_0.2-0.3 SOIL - 21/1/2016 SE148342.039	BH28_0.3-0.4 SOIL - 21/1/2016 SE148342.040	BH29_0.2-0.3 SOIL - 21/1/2016 SE148342.041
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 29/1/2016

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 15/1/2016 SE148342.001	BH3_0.2-0.3 SOIL - 19/1/2016 SE148342.002	BH4_0.4-0.5 SOIL - 18/1/2016 SE148342.003	BH5_0.2-0.5 SOIL - 20/1/2016 SE148342.004	BH6_0.2-0.3 SOIL - 20/1/2016 SE148342.005
Arsenic, As	mg/kg	3	8	<3	14	4	6
Cadmium, Cd	mg/kg	0.3	0.4	0.3	<0.3	<0.3	0.3
Chromium, Cr	mg/kg	0.3	35	73	5.7	70	38
Copper, Cu	mg/kg	0.5	15	24	13	19	22
Lead, Pb	mg/kg	1	23	9	8	8	24
Nickel, Ni	mg/kg	0.5	30	61	6.3	60	36
Zinc, Zn	mg/kg	0.5	28	56	29	43	42

PARAMETER	UOM	LOR	BH7_0.2-0.3 SOIL - 19/1/2016 SE148342.006	BH7_1.0-1.1 SOIL - 19/1/2016 SE148342.007	BH7_3.0-3.1 SOIL - 19/1/2016 SE148342.008	BH8_0.2-0.3 SOIL - 21/1/2016 SE148342.009	BH9_0.2-0.3 SOIL - 21/1/2016 SE148342.010
Arsenic, As	mg/kg	3	6	10	6	13	13
Cadmium, Cd	mg/kg	0.3	<0.3	0.4	0.4	0.5	<0.3
Chromium, Cr	mg/kg	0.3	24	20	28	38	15
Copper, Cu	mg/kg	0.5	17	14	13	14	13
Lead, Pb	mg/kg	1	15	21	11	23	7
Nickel, Ni	mg/kg	0.5	21	12	19	20	14
Zinc, Zn	mg/kg	0.5	76	69	100	44	24

PARAMETER	UOM	LOR	BH9_1.7-1.8 SOIL - 21/1/2016 SE148342.011	BH9_2.9-3.0 SOIL - 21/1/2016 SE148342.012	BH10_0.2-0.3 SOIL - 21/1/2016 SE148342.013	BH10_1.1-1.2 SOIL - 21/1/2016 SE148342.014	BH11_0.2-0.3 SOIL - 21/1/2016 SE148342.015
Arsenic, As	mg/kg	3	17	13	10	14	28
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.5	0.5	0.3
Chromium, Cr	mg/kg	0.3	15	27	24	25	17
Copper, Cu	mg/kg	0.5	21	23	9.3	14	21
Lead, Pb	mg/kg	1	9	13	25	26	25
Nickel, Ni	mg/kg	0.5	17	25	3.1	1.5	6.0
Zinc, Zn	mg/kg	0.5	44	44	39	27	86

PARAMETER	UOM	LOR	BH11_1.2-1.3 SOIL - 21/1/2016 SE148342.016	BH12_0.2-0.3 SOIL - 21/1/2016 SE148342.017	BH12_1.2-1.3 SOIL - 21/1/2016 SE148342.018	BH13_0.2-0.3 SOIL - 21/1/2016 SE148342.019	BH14_0.2-0.3 SOIL - 21/1/2016 SE148342.020
Arsenic, As	mg/kg	3	10	8	7	3	9
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.5	<0.3
Chromium, Cr	mg/kg	0.3	11	8.9	12	120	4.8
Copper, Cu	mg/kg	0.5	7.3	6.9	16	32	14
Lead, Pb	mg/kg	1	12	9	14	10	7
Nickel, Ni	mg/kg	0.5	0.6	6.6	2.5	100	6.7
Zinc, Zn	mg/kg	0.5	5.3	27	23	71	77

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 29/1/2016 (continued)

			BH15_0.2-0.3	BH15_1.1-1.2	BH16_0.2-0.3	BH17_0.2-0.3	BH18_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.021**	**SE148342.022**	**SE148342.023**	**SE148342.024**	**SE148342.025**
Arsenic, As	mg/kg	3	15	8	4	<3	10
Cadmium, Cd	mg/kg	0.3	0.5	0.3	0.4	0.4	0.3
Chromium, Cr	mg/kg	0.3	86	29	79	91	24
Copper, Cu	mg/kg	0.5	32	7.8	33	24	11
Lead, Pb	mg/kg	1	29	22	29	8	21
Nickel, Ni	mg/kg	0.5	82	3.6	79	84	8.2
Zinc, Zn	mg/kg	0.5	120	8.5	73	57	100

			BH19_0.2-0.3	BH19_1.7-1.8	BH20_0.2-0.3	BH20_0.7-0.8	BH21_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.026**	**SE148342.027**	**SE148342.028**	**SE148342.029**	**SE148342.030**
Arsenic, As	mg/kg	3	<3	4	<3	6	5
Cadmium, Cd	mg/kg	0.3	0.3	0.4	0.3	0.3	0.4
Chromium, Cr	mg/kg	0.3	31	35	28	26	53
Copper, Cu	mg/kg	0.5	390	79	50	34	23
Lead, Pb	mg/kg	1	21	21	14	23	14
Nickel, Ni	mg/kg	0.5	23	21	71	34	50
Zinc, Zn	mg/kg	0.5	76	62	60	84	61

			BH21_0.8-0.9	BH22_0.2-0.3	BH23_0.2-0.3	BH23_1.1-1.2	BH24_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.031**	**SE148342.032**	**SE148342.033**	**SE148342.034**	**SE148342.035**
Arsenic, As	mg/kg	3	10	7	7	10	3
Cadmium, Cd	mg/kg	0.3	<0.3	0.3	<0.3	<0.3	0.4
Chromium, Cr	mg/kg	0.3	13	22	57	2.5	120
Copper, Cu	mg/kg	0.5	10	12	42	3.6	29
Lead, Pb	mg/kg	1	13	15	10	2	9
Nickel, Ni	mg/kg	0.5	0.6	12	31	2.5	95
Zinc, Zn	mg/kg	0.5	4.3	14	38	11	65

			BH25_0.1-0.2	BH26_0.1-0.2	BH26_1.2-1.3	BH27_0.2-0.3	BH28_0.3-0.4
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.036**	**SE148342.037**	**SE148342.038**	**SE148342.039**	**SE148342.040**
Arsenic, As	mg/kg	3	6	4	10	3	4
Cadmium, Cd	mg/kg	0.3	0.4	0.4	0.6	0.5	<0.3
Chromium, Cr	mg/kg	0.3	86	99	22	120	17
Copper, Cu	mg/kg	0.5	39	39	11	33	32
Lead, Pb	mg/kg	1	21	270	20	12	17
Nickel, Ni	mg/kg	0.5	72	95	3.9	99	8.3
Zinc, Zn	mg/kg	0.5	96	80	8.8	80	35

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 29/1/2016 (continued)

			BH29_0.2-0.3	QD1	QD2
			SOIL	SOIL	SOIL
			-	-	-
			21/1/2016	21/1/2016	21/1/2016
PARAMETER	UOM	LOR	SE148342.041	SE148342.042	SE148342.043
Arsenic, As	mg/kg	3	<3	10	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.4
Chromium, Cr	mg/kg	0.3	5.1	20	96
Copper, Cu	mg/kg	0.5	57	7.0	33
Lead, Pb	mg/kg	1	29	15	8
Nickel, Ni	mg/kg	0.5	7.8	1.2	87
Zinc, Zn	mg/kg	0.5	71	9.9	55

Mercury in Soil [AN312] Tested: 1/2/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.001**	**SE148342.002**	**SE148342.003**	**SE148342.004**	**SE148342.005**
Mercury	mg/kg	0.01	0.02	0.01	<0.01	<0.01	0.03

			BH7_0.2-0.3	BH7_1.0-1.1	BH7_3.0-3.1	BH8_0.2-0.3	BH9_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	19/1/2016	19/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.006**	**SE148342.007**	**SE148342.008**	**SE148342.009**	**SE148342.010**
Mercury	mg/kg	0.01	0.03	0.04	0.01	0.03	<0.01

			BH9_1.7-1.8	BH9_2.9-3.0	BH10_0.2-0.3	BH10_1.1-1.2	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.011**	**SE148342.012**	**SE148342.013**	**SE148342.014**	**SE148342.015**
Mercury	mg/kg	0.01	<0.01	0.01	0.02	0.02	0.02

			BH11_1.2-1.3	BH12_0.2-0.3	BH12_1.2-1.3	BH13_0.2-0.3	BH14_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.016**	**SE148342.017**	**SE148342.018**	**SE148342.019**	**SE148342.020**
Mercury	mg/kg	0.01	<0.01	<0.01	0.01	0.01	<0.01

			BH15_0.2-0.3	BH15_1.1-1.2	BH16_0.2-0.3	BH17_0.2-0.3	BH18_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.021**	**SE148342.022**	**SE148342.023**	**SE148342.024**	**SE148342.025**
Mercury	mg/kg	0.01	0.06	0.01	0.05	0.02	<0.01

			BH19_0.2-0.3	BH19_1.7-1.8	BH20_0.2-0.3	BH20_0.7-0.8	BH21_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.026**	**SE148342.027**	**SE148342.028**	**SE148342.029**	**SE148342.030**
Mercury	mg/kg	0.01	0.01	0.01	0.01	0.03	0.02

			BH21_0.8-0.9	BH22_0.2-0.3	BH23_0.2-0.3	BH23_1.1-1.2	BH24_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.031**	**SE148342.032**	**SE148342.033**	**SE148342.034**	**SE148342.035**
Mercury	mg/kg	0.01	<0.01	0.01	0.03	<0.01	0.02

Mercury in Soil [AN312] Tested: 1/2/2016 (continued)

			BH25_0.1-0.2 SOIL - 21/1/2016	BH26_0.1-0.2 SOIL - 21/1/2016	BH26_1.2-1.3 SOIL - 21/1/2016	BH27_0.2-0.3 SOIL - 21/1/2016	BH28_0.3-0.4 SOIL - 21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.036**	**SE148342.037**	**SE148342.038**	**SE148342.039**	**SE148342.040**
Mercury	mg/kg	0.01	0.02	0.02	<0.01	0.01	0.01

			BH29_0.2-0.3 SOIL - 21/1/2016	QD1 SOIL - 21/1/2016	QD2 SOIL - 21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.041**	**SE148342.042**	**SE148342.043**
Mercury	mg/kg	0.01	0.01	<0.01	0.01

Moisture Content [AN002] Tested: 28/1/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.001**	**SE148342.002**	**SE148342.003**	**SE148342.004**	**SE148342.005**
% Moisture	%w/w	0.5	4.2	6.1	7.3	11	10

			BH7_0.2-0.3	BH7_1.0-1.1	BH7_3.0-3.1	BH8_0.2-0.3	BH9_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	19/1/2016	19/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.006**	**SE148342.007**	**SE148342.008**	**SE148342.009**	**SE148342.010**
% Moisture	%w/w	0.5	5.2	5.2	7.2	15	6.5

			BH9_1.7-1.8	BH9_2.9-3.0	BH10_0.2-0.3	BH10_1.1-1.2	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.011**	**SE148342.012**	**SE148342.013**	**SE148342.014**	**SE148342.015**
% Moisture	%w/w	0.5	5.0	6.2	13	15	19

			BH11_1.2-1.3	BH12_0.2-0.3	BH12_1.2-1.3	BH13_0.2-0.3	BH14_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.016**	**SE148342.017**	**SE148342.018**	**SE148342.019**	**SE148342.020**
% Moisture	%w/w	0.5	17	8.1	11	14	16

			BH15_0.2-0.3	BH15_1.1-1.2	BH16_0.2-0.3	BH17_0.2-0.3	BH18_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.021**	**SE148342.022**	**SE148342.023**	**SE148342.024**	**SE148342.025**
% Moisture	%w/w	0.5	21	26	13	11	26

			BH19_0.2-0.3	BH19_1.7-1.8	BH20_0.2-0.3	BH20_0.7-0.8	BH21_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.026**	**SE148342.027**	**SE148342.028**	**SE148342.029**	**SE148342.030**
% Moisture	%w/w	0.5	12	11	8.7	15	6.3

			BH21_0.8-0.9	BH22_0.2-0.3	BH23_0.2-0.3	BH23_1.1-1.2	BH24_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.031**	**SE148342.032**	**SE148342.033**	**SE148342.034**	**SE148342.035**
% Moisture	%w/w	0.5	18	9.4	8.1	9.0	9.7

Moisture Content [AN002] Tested: 28/1/2016 (continued)

PARAMETER	UOM	LOR	BH25_0.1-0.2 SOIL - 21/1/2016 SE148342.036	BH26_0.1-0.2 SOIL - 21/1/2016 SE148342.037	BH26_1.2-1.3 SOIL - 21/1/2016 SE148342.038	BH27_0.2-0.3 SOIL - 21/1/2016 SE148342.039	BH28_0.3-0.4 SOIL - 21/1/2016 SE148342.040
% Moisture	%w/w	0.5	7.9	7.7	20	11	11

PARAMETER	UOM	LOR	BH29_0.2-0.3 SOIL - 21/1/2016 SE148342.041	QD1 SOIL - 21/1/2016 SE148342.042	QD2 SOIL - 21/1/2016 SE148342.043	QTB1 SOIL - 21/1/2016 SE148342.045
% Moisture	%w/w	0.5	10	19	7.1	<0.5

Fibre Identification in soil [AN602] Tested: 1/2/2016

			BH1_0.1-0.2	BH3_0.2-0.3	BH4_0.4-0.5	BH5_0.2-0.5	BH6_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			15/1/2016	19/1/2016	18/1/2016	20/1/2016	20/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.001**	**SE148342.002**	**SE148342.003**	**SE148342.004**	**SE148342.005**
Asbestos Detected	No unit	-	No	No	Yes	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			BH7_0.2-0.3	BH8_0.2-0.3	BH9_0.2-0.3	BH10_0.2-0.3	BH11_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			19/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.006**	**SE148342.009**	**SE148342.010**	**SE148342.013**	**SE148342.015**
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			BH12_0.2-0.3	BH13_0.2-0.3	BH14_0.2-0.3	BH15_0.2-0.3	BH16_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.017**	**SE148342.019**	**SE148342.020**	**SE148342.021**	**SE148342.023**
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			BH17_0.2-0.3	BH18_0.2-0.3	BH19_0.2-0.3	BH20_0.2-0.3	BH21_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.024**	**SE148342.025**	**SE148342.026**	**SE148342.028**	**SE148342.030**
Asbestos Detected	No unit	-	No	No	Yes	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	>0.01	<0.01	<0.01

			BH22_0.2-0.3	BH23_0.2-0.3	BH24_0.2-0.3	BH25_0.1-0.2	BH26_0.1-0.2
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			21/1/2016	21/1/2016	21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.032**	**SE148342.033**	**SE148342.035**	**SE148342.036**	**SE148342.037**
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

			BH27_0.2-0.3	BH28_0.3-0.4	BH29_0.2-0.3
			SOIL	SOIL	SOIL
			-	-	-
			21/1/2016	21/1/2016	21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.039**	**SE148342.040**	**SE148342.041**
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01

VOCs in Water [AN433/AN434] Tested: 29/1/2016

PARAMETER	UOM	LOR	QR1 WATER - 21/1/2016 SE148342.044
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433/AN434/AN410] Tested: 29/1/2016

PARAMETER	UOM	LOR	QR1 WATER - 21/1/2016 SE148342.044
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 27/1/2016

			QR1 WATER - 21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.044**
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16 (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 2/2/2016

PARAMETER	UOM	LOR	QR1 WATER - 21/1/2016 SE148342.044
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311/AN312] Tested: 2/2/2016

			QR1 WATER - 21/1/2016
PARAMETER	**UOM**	**LOR**	**SE148342.044**
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).

AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS -SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:
a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS -SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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SGS

ANALYTICAL REPORT

Accreditation No. 2562

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Project	**E22851 149-163 Milton St Ashbury**	SGS Reference	**SE148342 R0**
Order Number	**E22851**	Date Received	25 Jan 2016
Samples	28	Date Reported	04 Feb 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.

Sample #3: 1-3mm length fibre bundle found loose in sample.
Sample #26: 2-6mm length fibre bundles x5 found loose in sample.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

Huong Crawford
Production Manager

Kamrul Ahsan
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Ly Kim Ha
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S.Raveendran.

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Asbestos Analyst/Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE148342.001	BH1_0.1-0.2	Soil	49g Soil, Rocks	15 Jan 2016	No Asbestos Found	<0.01
SE148342.002	BH3_0.2-0.3	Soil	107g Soil, Rocks	19 Jan 2016	No Asbestos Found	<0.01
SE148342.003	BH4_0.4-0.5	Soil	50g Clay	18 Jan 2016	Chrysotile Asbestos Found	<0.01
SE148342.004	BH5_0.2-0.5	Soil	124g Clay, Soil, Rocks	20 Jan 2016	No Asbestos Found	<0.01
SE148342.005	BH6_0.2-0.3	Soil	88g Clay, Soil, Rocks	20 Jan 2016	No Asbestos Found	<0.01
SE148342.006	BH7_0.2-0.3	Soil	122g Clay, Soil, Rocks	19 Jan 2016	No Asbestos Found	<0.01
SE148342.009	BH8_0.2-0.3	Soil	87g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.010	BH9_0.2-0.3	Soil	163g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.013	BH10_0.2-0.3	Soil	93g Clay, Soil	21 Jan 2016	No Asbestos Found	<0.01
SE148342.015	BH11_0.2-0.3	Soil	40g Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.017	BH12_0.2-0.3	Soil	165g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.019	BH13_0.2-0.3	Soil	76g Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.020	BH14_0.2-0.3	Soil	96g Sand, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.021	BH15_0.2-0.3	Soil	170g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.023	BH16_0.2-0.3	Soil	163g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.024	BH17_0.2-0.3	Soil	98g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.025	BH18_0.2-0.3	Soil	86g Clay, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.026	BH19_0.2-0.3	Soil	116g Sand, Soil, Rocks	21 Jan 2016	Amosite Asbestos Found	>0.01
SE148342.028	BH20_0.2-0.3	Soil	150g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.030	BH21_0.2-0.3	Soil	169g Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.032	BH22_0.2-0.3	Soil	105g Sand, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.033	BH23_0.2-0.3	Soil	134g Sand, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.035	BH24_0.2-0.3	Soil	144g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.036	BH25_0.1-0.2	Soil	188g Sand, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.037	BH26_0.1-0.2	Soil	198g Clay, Sand, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.039	BH27_0.2-0.3	Soil	174g Clay, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.040	BH28_0.3-0.4	Soil	199g Sand, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01
SE148342.041	BH29_0.2-0.3	Soil	153g Sand, Soil, Rocks	21 Jan 2016	No Asbestos Found	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy , including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx . The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 140607

Client:

Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont
NSW 2009

Attention: Emmanuel Woelders

Sample log in details:

Your Reference:	**E22851, Ashbury**		
No. of samples:	2 Soils		
Date samples received / completed instructions received	25/01/16	/	25/01/16

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.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	2/02/16	/	29/01/16
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	140607-1	140607-2
Your Reference	------------- -	QT1	QT2
Date Sampled	------------	20&21 /01/16	20&21 /01/16
Type of sample		Soil	Soil
Date extracted	-	27/01/2016	27/01/2016
Date analysed	-	28/01/2016	28/01/2016
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	99	103

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	140607-1	140607-2
Your Reference	------------- -	QT1	QT2
Date Sampled	------------	20&21 /01/16	20&21 /01/16
Type of sample		Soil	Soil
Date extracted	-	27/01/2016	27/01/2016
Date analysed	-	28/01/2016	28/01/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100
Surrogate o-Terphenyl	%	80	79

Acid Extractable metals in soil			
Our Reference:	UNITS	140607-1	140607-2
Your Reference	------------- -	QT1	QT2
Date Sampled	------------	20&21 /01/16	20&21 /01/16
Type of sample		Soil	Soil
Date prepared	-	27/01/2016	27/01/2016
Date analysed	-	27/01/2016	27/01/2016
Arsenic	mg/kg	8	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	19	63
Copper	mg/kg	7	38
Lead	mg/kg	13	5
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	2	78
Zinc	mg/kg	8	45

Moisture Our Reference: Your Reference	UNITS ------------- -	140607-1 QT1	140607-2 QT2
Date Sampled	------------	20&21 /01/16	20&21 /01/16
Type of sample		Soil	Soil
Date prepared	-	27/01/2016	27/01/2016
Date analysed	-	28/01/2016	28/01/2016
Moisture	%	20	5.6

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/01/2016	[NT]	[NT]	LCS-1	27/01/2016
Date analysed	-			28/01/2016	[NT]	[NT]	LCS-1	28/01/2016
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	116%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	116%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	111%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	118%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	113%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	118%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	112%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	105	[NT]	[NT]	LCS-1	120%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/01/2016	[NT]	[NT]	LCS-1	27/01/2016
Date analysed	-			27/01/2016	[NT]	[NT]	LCS-1	27/01/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	110%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	116%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	111%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	110%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	116%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	111%
Surrogate o-Terphenyl	%		Org-003	90	[NT]	[NT]	LCS-1	99%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			27/01/2016	[NT]	[NT]	LCS-3	27/01/2016
Date analysed	-			27/01/2016	[NT]	[NT]	LCS-3	27/01/2016
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-3	108%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-3	105%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	107%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	101%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-3	117%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	105%

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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.

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.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Emmanuel Woelders
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
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Facsimile	02 9516 0741
Email	Emmanuel.Woelders@eiaustralia.com.au
Project	**E22851 - 149-163 Milton St, Ashbury NSW**
Order Number	**E22851**
Samples	9

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE148537 R0**
Date Received	2/2/2016
Date Reported	9/2/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

Andy Sutton

Andy Sutton
Senior Organic Chemist

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

VOCs in Water [AN433/AN434] Tested: 3/2/2016

			BH1M	BH3M	BH4M	BH7M	BH8M
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			28/1/2016	29/1/2016	29/1/2016	29/1/2016	29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.001**	**SE148537.002**	**SE148537.003**	**SE148537.004**	**SE148537.005**
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	<5	<5
Chloromethane	µg/L	5	<5	<5	<5	<5	<5
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Bromomethane	µg/L	10	<10	<10	<10	<10	<10
Chloroethane	µg/L	5	<5	<5	<5	<5	<5
Trichlorofluoromethane	µg/L	1	<1	<1	<1	<1	<1
Acetone (2-propanone)	µg/L	10	<10	<10	<10	<10	<10
Iodomethane	µg/L	5	<5	<5	<5	<5	<5
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	<5	<5
Allyl chloride	µg/L	2	<2	<2	<2	<2	<2
Carbon disulfide	µg/L	2	<2	<2	<2	<2	<2
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<2	<2	<2
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl acetate	µg/L	10	<10	<10	<10	<10	<10
MEK (2-butanone)	µg/L	10	<10	<10	<10	<10	<10
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform (THM)	µg/L	0.5	7.6	13	2.2	16	1.3
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitropropane	µg/L	100	<100	<100	<100	<100	<100
Bromodichloromethane (THM)	µg/L	0.5	<0.5	3.6	0.6	3.7	<0.5
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	<5	<5
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane (THM)	µg/L	0.5	<0.5	0.6	<0.5	0.7	<0.5
2-hexanone (MBK)	µg/L	5	<5	<5	<5	<5	<5
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1	<1
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1	<1

VOCs in Water [AN433/AN434] Tested: 3/2/2016 (continued)

			BH1M WATER - 28/1/2016	BH3M WATER - 29/1/2016	BH4M WATER - 29/1/2016	BH7M WATER - 29/1/2016	BH8M WATER - 29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.001**	**SE148537.002**	**SE148537.003**	**SE148537.004**	**SE148537.005**
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total VOC	µg/L	10	-	-	-	-	-

VOCs in Water [AN433/AN434] Tested: 3/2/2016 (continued)

			GWQD1	GWQTB1	GWQTS1	GWQR1
			WATER	WATER	WATER	WATER
			-	-	-	-
			29/1/2016	29/1/2016	29/1/2016	29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.006**	**SE148537.007**	**SE148537.008**	**SE148537.009**
Benzene	µg/L	0.5	<0.5	<0.5	[88%]	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	[85%]	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	[104%]	<0.5
m/p-xylene	µg/L	1	<1	<1	[104%]	<1
o-xylene	µg/L	0.5	<0.5	<0.5	[104%]	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	-	<1.5
Total BTEX	µg/L	3	<3	<3	-	<3
Naphthalene	µg/L	0.5	<0.5	<0.5	-	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-	-	-
Chloromethane	µg/L	5	-	-	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-	-	-
Bromomethane	µg/L	10	-	-	-	-
Chloroethane	µg/L	5	-	-	-	-
Trichlorofluoromethane	µg/L	1	-	-	-	-
Acetone (2-propanone)	µg/L	10	-	-	-	-
Iodomethane	µg/L	5	-	-	-	-
1,1-dichloroethene	µg/L	0.5	-	-	-	-
Acrylonitrile	µg/L	0.5	-	-	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-	-	-
Allyl chloride	µg/L	2	-	-	-	-
Carbon disulfide	µg/L	2	-	-	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	-	-	-	-
1,1-dichloroethane	µg/L	0.5	-	-	-	-
Vinyl acetate	µg/L	10	-	-	-	-
MEK (2-butanone)	µg/L	10	-	-	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-	-	-
Bromochloromethane	µg/L	0.5	-	-	-	-
Chloroform (THM)	µg/L	0.5	-	-	-	-
2,2-dichloropropane	µg/L	0.5	-	-	-	-
1,2-dichloroethane	µg/L	0.5	-	-	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-	-	-
1,1-dichloropropene	µg/L	0.5	-	-	-	-
Carbon tetrachloride	µg/L	0.5	-	-	-	-
Dibromomethane	µg/L	0.5	-	-	-	-
1,2-dichloropropane	µg/L	0.5	-	-	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-	-	-
2-nitropropane	µg/L	100	-	-	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-	-	-
1,3-dichloropropane	µg/L	0.5	-	-	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-	-	-
2-hexanone (MBK)	µg/L	5	-	-	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-	-	-
Chlorobenzene	µg/L	0.5	-	-	-	-
Bromoform (THM)	µg/L	0.5	-	-	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-	-	-
trans-1,4-dichloro-2-butene	µg/L	1	-	-	-	-

VOCs in Water [AN433/AN434] Tested: 3/2/2016 (continued)

			GWQD1 WATER - 29/1/2016	GWQTB1 WATER - 29/1/2016	GWQTS1 WATER - 29/1/2016	GWQR1 WATER - 29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.006**	**SE148537.007**	**SE148537.008**	**SE148537.009**
Isopropylbenzene (Cumene)	µg/L	0.5	-	-	-	-
Bromobenzene	µg/L	0.5	-	-	-	-
n-propylbenzene	µg/L	0.5	-	-	-	-
2-chlorotoluene	µg/L	0.5	-	-	-	-
4-chlorotoluene	µg/L	0.5	-	-	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-	-	-
tert-butylbenzene	µg/L	0.5	-	-	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-	-	-
sec-butylbenzene	µg/L	0.5	-	-	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-	-	-
p-isopropyltoluene	µg/L	0.5	-	-	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-	-	-
n-butylbenzene	µg/L	0.5	-	-	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-	-	-
Hexachlorobutadiene	µg/L	0.5	-	-	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-	-	-
Total VOC	µg/L	10	-	-	-	-

Volatile Petroleum Hydrocarbons in Water [AN433/AN434/AN410] Tested: 3/2/2016

PARAMETER	UOM	LOR	BH1M WATER - 28/1/2016 SE148537.001	BH3M WATER - 29/1/2016 SE148537.002	BH4M WATER - 29/1/2016 SE148537.003	BH7M WATER - 29/1/2016 SE148537.004	BH8M WATER - 29/1/2016 SE148537.005
TRH C6-C9	µg/L	40	<40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50	<50

PARAMETER	UOM	LOR	GWQD1 WATER - 29/1/2016 SE148537.006	GWQR1 WATER - 29/1/2016 SE148537.009
TRH C6-C9	µg/L	40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 3/2/2016

PARAMETER	UOM	LOR	BH1M WATER - 28/1/2016 SE148537.001	BH3M WATER - 29/1/2016 SE148537.002	BH4M WATER - 29/1/2016 SE148537.003	BH7M WATER - 29/1/2016 SE148537.004	BH8M WATER - 29/1/2016 SE148537.005
TRH C10-C14	µg/L	50	<50	<50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16 (F2)	µg/L	60	<60	<60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500	<500
TRH C10-C36	µg/L	450	<450	<450	<450	<450	<450
TRH C10-C40	µg/L	650	<650	<650	<650	<650	<650

PARAMETER	UOM	LOR	GWQD1 WATER - 29/1/2016 SE148537.006	GWQR1 WATER - 29/1/2016 SE148537.009
TRH C10-C14	µg/L	50	<50	<50
TRH C15-C28	µg/L	200	<200	<200
TRH C29-C36	µg/L	200	<200	<200
TRH C37-C40	µg/L	200	<200	<200
TRH >C10-C16 (F2)	µg/L	60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500
TRH C10-C36	µg/L	450	<450	<450
TRH C10-C40	µg/L	650	<650	<650

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 3/2/2016

			BH1M	BH3M	BH4M	BH7M	BH8M
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			28/1/2016	29/1/2016	29/1/2016	29/1/2016	29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.001**	**SE148537.002**	**SE148537.003**	**SE148537.004**	**SE148537.005**
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1	<1	<1

Anions by Ion Chromatography in Water [ME-AU-ENVAN245] Tested: 4/2/2016

PARAMETER	UOM	LOR	BH4M WATER - 29/1/2016 SE148537.003
Chloride	mg/L	1	530
Sulphate, SO4	mg/L	1	620

pH in water [AN101] Tested: 3/2/2016

			BH4M WATER - 29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.003**
pH**	pH Units	-	5.3

Conductivity and TDS by Calculation - Water [AN106] Tested: 3/2/2016

			BH4M WATER - 29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.003**
Conductivity @ 25 C	µS/cm	2	3500
Resistivity*	ohm m	-	3

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 5/2/2016

PARAMETER	UOM	LOR	BH1M WATER - 28/1/2016 SE148537.001	BH3M WATER - 29/1/2016 SE148537.002	BH4M WATER - 29/1/2016 SE148537.003	BH7M WATER - 29/1/2016 SE148537.004	BH8M WATER - 29/1/2016 SE148537.005
Arsenic, As	µg/L	1	<1	<1	<1	<1	2
Cadmium, Cd	µg/L	0.1	<0.1	2.7	<0.1	<0.1	<0.1
Chromium, Cr	µg/L	1	<1	<1	<1	<1	<1
Copper, Cu	µg/L	1	7	5	13	10	4
Lead, Pb	µg/L	1	<1	<1	<1	<1	<1
Nickel, Ni	µg/L	1	4	24	12	6	4
Zinc, Zn	µg/L	5	37	110	46	59	21

PARAMETER	UOM	LOR	GWQD1 WATER - 29/1/2016 SE148537.006	GWQR1 WATER - 29/1/2016 SE148537.009
Arsenic, As	µg/L	1	<1	<1
Cadmium, Cd	µg/L	0.1	<0.1	<0.1
Chromium, Cr	µg/L	1	<1	<1
Copper, Cu	µg/L	1	3	<1
Lead, Pb	µg/L	1	<1	<1
Nickel, Ni	µg/L	1	4	<1
Zinc, Zn	µg/L	5	36	<5

Mercury (dissolved) in Water [AN311/AN312] Tested: 8/2/2016

			BH1M WATER - 28/1/2016	BH3M WATER - 29/1/2016	BH4M WATER - 29/1/2016	BH7M WATER - 29/1/2016	BH8M WATER - 29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.001**	**SE148537.002**	**SE148537.003**	**SE148537.004**	**SE148537.005**
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

			GWQD1 WATER - 29/1/2016	GWQR1 WATER - 29/1/2016
PARAMETER	**UOM**	**LOR**	**SE148537.006**	**SE148537.009**
Mercury	mg/L	0.0001	<0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV -visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B
AN311/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434/AN410	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS -SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS -SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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CERTIFICATE OF ANALYSIS 140967

Client:
Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont
NSW 2009

Attention: Emmanuel Woelders

Sample log in details:

Your Reference:	**E22851, Ashbury**		
No. of samples:	1 Water		
Date samples received / completed instructions received	02/02/16	/	02/02/16

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.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	9/02/16	/	5/02/16
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR
TECHNICAL
COMPETENCE

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	140967-1
Your Reference	------------- -	GWQT1
Date Sampled	------------	28/02/2016
Type of sample		Water
Date extracted	-	03/02/2016
Date analysed	-	04/02/2016
TRHC_6 - C_9	µg/L	17
TRHC_6 - C_{10}	µg/L	20
TRHC_6 - C_{10} less BTEX (F1)	µg/L	20
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	105
Surrogate toluene-d8	%	101
Surrogate 4-BFB	%	97

svTRH (C10-C40) in Water		
Our Reference:	UNITS	140967-1
Your Reference	------------- -	GWQT1
Date Sampled	------------	28/02/2016
Type of sample		Water
Date extracted	-	3/02/2016
Date analysed	-	04/02/2016
TRHC$_{10}$ - C$_{14}$	µg/L	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100
Surrogate o-Terphenyl	%	87

HM in water - dissolved		
Our Reference:	UNITS	140967-1
Your Reference	------------- -	GWQT1
Date Sampled	------------	28/02/2016
Type of sample		Water
Date prepared	-	03/02/2016
Date analysed	-	03/02/2016
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	5
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	4
Zinc-Dissolved	µg/L	38

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/02/2016	[NT]	[NT]	LCS-W1	03/02/2016
Date analysed	-			04/02/2016	[NT]	[NT]	LCS-W1	04/02/2016
TRHC_{6} - C_{9}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	93%
TRHC_{6} - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	93%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	91%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	95%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	92%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	93%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	94%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	102	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		Org-016	101	[NT]	[NT]	LCS-W1	102%
Surrogate 4-BFB	%		Org-016	99	[NT]	[NT]	LCS-W1	105%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/02/2016	[NT]	[NT]	LCS-W4	03/02/2016
Date analysed	-			04/02/2016	[NT]	[NT]	LCS-W4	04/02/2016
TRHC_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W4	87%
TRHC_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W4	103%
TRHC_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W4	88%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W4	87%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W4	103%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W4	88%
Surrogate o-Terphenyl	%		Org-003	87	[NT]	[NT]	LCS-W4	101%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			03/02/2016	[NT]	[NT]	LCS-W1	03/02/2016
Date analysed	-			03/02/2016	[NT]	[NT]	LCS-W1	03/02/2016
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	101%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	92%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	94%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	106%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	88%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	93%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	140967-1	03/02/2016
Date analysed	-	[NT]	[NT]	140967-1	03/02/2016
Arsenic-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Cadmium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Chromium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Copper-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Lead-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Mercury-Dissolved	µg/L	[NT]	[NT]	140967-1	80%
Nickel-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Zinc-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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.

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.

APPENDIX G
QA/QC Assessment

G1 QUALITY CONTROL PROGRAM

G1.1 INTRODUCTION

For the purpose of assessing the quality of data presented in this Contaminant Delineation Report, EI collected field QC samples for analysis. The primary laboratory, SGS Australia Pty Ltd (SGS) and secondary laboratory, Envirolab Services Pty Ltd (Envirolab) also prepared and analysed internal QC samples. Details of the field and laboratory QC samples, with the allowable data acceptance ranges are presented in **Table G-1**.

Table G-1 Sampling Data Quality Indicators

QA/QC Measures	Data Quality Indicators
Precision – A quantitative measure of the variability (or reproducibility) of data	Data precision would be assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where: • Results are less than 10 times the limits of reporting (LOR); • Results are less than 20 times the LOR and the RPD is less than 50%; or • Heterogeneous materials or volatile compounds are encountered.
Accuracy – A quantitative measure of the closeness of reported data to the “true” value	Data accuracy would be assessed through the analysis of: • Method blanks, which are analysed for the analytes targeted in the primary samples; • Matrix spike and matrix spike duplicate sample sets; • Laboratory control samples; and • Calibration of instruments against known standards.
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	To ensure the data produced by the laboratory is representative of conditions encountered in the field, the laboratory would carry out the following: • Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory artefacts; • Review of relative percentage differences (RPD) values for field and laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and • The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).
Completeness – A measure of the amount of useable data from a data collection activity	Analytical data sets acquired during the assessment will be evaluated as complete, upon confirmation that: • Standard operating procedures (SOPs) for sampling protocols were adhered to; and • Copies of all COC documentation are presented, reviewed and found to be properly completed. It can therefore be considered whether the proportion of “useable data” generated in the data collection activities is sufficient for the purposes of the land use assessment.

Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Given that a reported data set can comprise several data sets from separate sampling episodes, issues of comparability between data sets are reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data will be collected by experienced samplers and NATA-accredited laboratory methodologies will be employed in all laboratory testing programs.

G1.2 CALCULATION OF RELATIVE PERCENTAGE DIFFERENCE (RPD)

The RPD values were calculated using the following equation:

$$RPD = \frac{|C_O - C_R|}{[(C_O + C_R)/2]} \times 100$$

Where:

C_O = Concentration obtained for the primary sample; and

C_R = Concentration obtained for the blind replicate or split duplicate sample.

G2 FIELD QA/QC DATA EVALUATION

The field quality assurance/quality control (QA/QC) soil and groundwater samples collected during the investigations were as follows:

- Blind field duplicates;
- Inter-laboratory duplicates;
- Trip blanks;
- Trip spikes; and
- Rinsate blanks.

Analytical results for tested soil and groundwater QA/QC samples, including calculated RPD values between primary and duplicate samples, are presented in **Table G-2** and **Table G-3**, respectively.

G2.1 SOIL INVESTIGATION & SOIL VALIDATION

G2.1.1 Blind Field Duplicates

Two blind field duplicate (BFD) soil samples were collected in total, as follows:

- Sample QD1 was collected from the primary sample BH11_0.2-0.3 on 20 January, 2016; and
- Sample QD2 was collected from the primary sample BH26_0.1-0.2 also on 20 January, 2016.

The preparation of the BFD samples involved the collection of a bulk quantity of soil from the same sampling point without mixing, before dividing the material into identical sampling vessels. The duplicate samples were then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. BFD soil samples were analysed for TRHs, BTEX and heavy metals and calculated RPD values were found to be within the Data Acceptance Criteria (**Appendix H**, **Table QC5**), with the exception of F3 – C6-C34 (157.65%), Arsenic (94.74%) , Copper (100%) Mercury (66.67%), Nickel (133.33%) and Zinc (158.71%) for soil investigation sample BH11_0.2-0.3. Copper (188.49%) and Mercury (66.67%) for soil investigation sample BH26_0.1-0.2. These results were considered to reflect the non-homogenous nature of the fill material, which is a typical characteristic of disturbed fill soils in Sydney's older, urban-industrial precincts.

G2.1.2 Inter-Laboratory Duplicate

Sample QT1 and QT2 were collected as inter-laboratory duplicate (ILD) samples of the primary sample BH11-0.2-0.3 and BH26_0.1-0.2 respectively on 20 January, 2016. The preparation of the ILD sample was identical to the BFD sample, as described above, and were analysed for TRHs, BTEX and heavy metals. The calculated RPD values were found to be within the Data Acceptance Criteria (**Appendix H**, **Table QC5**), with the exception of with the exception of F3 – C6-C34 (153.49%), Arsenic (111.11%) , Copper (100%) , lead (63.16%), Mercury (133.33%), Nickel (100%) and Zinc (165.96%) for soil investigation sample BH11_0.2-0.3. Toluene (133.33%), Lead (192.73%), Mercury (133.33%) and zinc (56%) for soil investigation sample BH26_0.1-0.2. These results were considered to reflect the non-homogenous nature of the fill material, which is a typical characteristic of disturbed fill soils in Sydney's older, urban-industrial precincts.

Furthermore, soil samples were placed immediately into jars following sampling to reduce the loss of volatiles from samples. Analytical results indicated that the samples collected were representative of the soils present at respective sampling locations.

G2.1.3 Trip Blank

One trip blank (TB) sample was prepared and analysed by the primary laboratory for BTEX. Analytical results for this sample were below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved.

G2.1.4 Trip Spike

One trip spike (TS) sample was submitted to the primary laboratory for BTEX analysis, the results for which were reported within the RPD acceptance levels for trip spike recovery. It was therefore concluded that satisfactory sample transport and handling conditions were achieved.

G2.1.5 Rinsate Blank

One rinsate blank (RB) sample QR1 was submitted to the primary laboratory for Heavy Metals, TRH and BTEX analysis, the results for which were reported below laboratory LOR; therefore, it was concluded that decontamination procedures performed during the field works had been effective.

G2.2 GROUNDWATER INVESTIGATION

G2.2.1 Blind Field Duplicates

One groundwater BFD sample GWQD1 was collected from primary sample BH1M on 28 January, 2016.

The preparation of BFD samples involved the decanting of the groundwater collected from the respective monitoring well into two separate groups of appropriately labelled sampling containers. Volumes were split equally between the groups of sampling bottles such that the sample contained in each individual bottle, contained a similar proportion of each water volume. Sample mixing did not occur prior to decanting, in order to preserve the concentrations of volatiles potentially present within the sample. The duplicate sample was then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. The BFDs were analysed for TRHs, BTEX and heavy metals. The RPD values calculated for all the analytes tested were found to be within the Data Acceptance Criteria (DAC), with the exception of copper (80.0 %) which can be attributed to a small variation of the reported concentrations.

G2.2.2 Inter-Laboratory Duplicate

- One groundwater ILD sample GWQT1 was collected from primary sample BH1M on 28 January 2016.

The preparation of a groundwater ILD sample was identical to the BFD sample as described above and also analysed for TRHs, BTEX, and heavy metals. The RPD values calculated for the ILD samples were found to be within the Data Acceptance Criteria, with the exception of F1 fraction (85.71%), this can be attributed to differences between the two laboratories limit of reporting. Despite the discrepancies, overall data quality was considered to be acceptable, in accordance with the laboratory DQOs presented in **Appendix H, Table QC5**.

G2.2.3 Trip Blanks

One trip blank (TB) samples (GWQTB1), prepared by the primary laboratory, were analysed for BTEX by the primary laboratory during groundwater testing. TB results were reported below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved.

G2.2.4 Trip Spikes

One Trip Spike (TS) sample (GWTS1) was submitted to the primary laboratory for BTEX analysis, the results for which were all reported within the RPD acceptance levels for trip spike recovery. It was therefore concluded that satisfactory sample transport and handling conditions were achieved.

G2.2.5 Rinsate Blanks

One RB samples (GWQR1) was submitted to the primary laboratory for TRHs, BTEX and selected heavy metals analyses. Analytical results were reported below the laboratory LOR for most analytes, concluding that satisfactory decontamination procedures were achieved.

G3 LABORATORY QA/QC

G3.1 LABORATORY ACCREDITATION

To undertake all analytical testing, EI commissioned SGS as the primary laboratory and Envirolab as the secondary laboratory. SGS and Envirolab, both established analytical laboratories which operate in accordance with the guidelines set out in ISO/IEC Guide 25 “General requirements for the competence of calibration and testing laboratories”, conducted all respective analyses using National Association Testing Authorities (NATA)-registered procedures.

In relation to contingencies, should the pre-determined DQOs not be achieved, in accordance with each laboratory’s QC policy (**Appendix H**), respective tests would be accordingly repeated. Should the results again fall outside the DQOs, then sample heterogeneity may be assumed and written comment will be provided to this effect on the final laboratory certificate. The laboratory QA/QC reports are included in **Appendix H**.

G3.2 SAMPLE HOLDING TIMES

Sample holding times were generally within the laboratory DQOs, which were consistent with standard environmental protocols as tabulated in **Appendix H**, **Tables QC1** and **QC2**, with the following exceptions:

- Extraction date and analysis for pH for the groundwater sample BH4M due to short holding times.

G3.3 TEST METHODS AND PRACTICAL QUANTITATION LIMITS (PQLS)

Practical Quantitation Limits for all tested parameters during the assessment of soils and groundwater are presented in **Appendix H**, **Tables QC3** and **QC4**.

G3.4 METHOD BLANKS

Concentrations of all parameters in method blanks during the assessment were below the laboratory PQLs and were therefore within the DAC.

G3.5 LABORATORY DUPLICATE SAMPLES

The Laboratory Control Samples (LCS) for the analysis batches showed calculated RPDs that were within acceptable ranges and conformed to the DAC, with the exception of copper (77%), lead (124%) and zinc (62%) for sample SE148366.005 and nickel (43%) for sample SE18342.007 due to sample heterogeneity.

G3.6 LABORATORY CONTROL SAMPLES

The Laboratory Control Samples for the analysis batches were within acceptable ranges and conformed to the DAC.

G3.7 MATRIX SPIKES

All matrix spikes for the respective sample batches were within acceptable ranges and conformed to the DAC, with the exception of lead (67%) for sample SE148334.061 due to 4 and chromium (34%), lead (69%), nickel (37%) and zinc (34%) for SE148342.036 due to matrix interference.

G3.8 SURROGATE

Recovery results for all surrogate samples conformed to the DAC.

G3.9 CONCLUDING REMARK

Based on the laboratory QA/QC results EI considers that although a small number of discrepancies were identified, which in most cases could be attributed to the non-homogenous nature of the submitted samples, the data generally confirms that the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes.

APPENDIX H

Laboratory QA/AC Policies and DQOs

STATEMENT OF QA/QC PERFORMANCE

SE148342 R0

CLIENT DETAILS

Contact	Emmanuel Woelders
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	emmanuel.woelders@eiaustralia.com.au
Project	**E22851 149-163 Milton St Ashbury**
Order Number	**E22851**
Samples	46

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE148342 R0**
Date Received	25 Jan 2016
Date Reported	04 Feb 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Metals in Soil by ICPOES	1 item
	Total Recoverable Metals in Soil by ICPOES	3 items
Matrix Spike	Total Recoverable Metals in Soil by ICPOES	1 item
	Total Recoverable Metals in Soil by ICPOES	4 items

SAMPLE SUMMARY

Sample counts by matrix	45 soils, 1 water	Type of documentation received	COC
Date documentation received	25/1/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	7.5°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB094156	15 Jan 2016	25 Jan 2016	14 Jan 2017	01 Feb 2016	14 Jan 2017	02 Feb 2016
BH3_0.2-0.3	SE148342.002	LB094156	19 Jan 2016	25 Jan 2016	18 Jan 2017	01 Feb 2016	18 Jan 2017	02 Feb 2016
BH4_0.4-0.5	SE148342.003	LB094156	18 Jan 2016	25 Jan 2016	17 Jan 2017	01 Feb 2016	17 Jan 2017	02 Feb 2016
BH5_0.2-0.5	SE148342.004	LB094156	20 Jan 2016	25 Jan 2016	19 Jan 2017	01 Feb 2016	19 Jan 2017	02 Feb 2016
BH6_0.2-0.3	SE148342.005	LB094156	20 Jan 2016	25 Jan 2016	19 Jan 2017	01 Feb 2016	19 Jan 2017	02 Feb 2016
BH7_0.2-0.3	SE148342.006	LB094156	19 Jan 2016	25 Jan 2016	18 Jan 2017	01 Feb 2016	18 Jan 2017	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH9_0.2-0.3	SE148342.010	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH13_0.2-0.3	SE148342.019	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH14_0.2-0.3	SE148342.020	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH15_0.2-0.3	SE148342.021	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH17_0.2-0.3	SE148342.024	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH18_0.2-0.3	SE148342.025	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH19_0.2-0.3	SE148342.026	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH23_0.2-0.3	SE148342.033	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH25_0.1-0.2	SE148342.036	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH26_0.1-0.2	SE148342.037	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH28_0.3-0.4	SE148342.040	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016
BH29_0.2-0.3	SE148342.041	LB094156	21 Jan 2016	25 Jan 2016	20 Jan 2017	01 Feb 2016	20 Jan 2017	02 Feb 2016

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE148342.044	LB094198	21 Jan 2016	25 Jan 2016	18 Feb 2016	02 Feb 2016	18 Feb 2016	03 Feb 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB094138	15 Jan 2016	25 Jan 2016	12 Feb 2016	01 Feb 2016	12 Feb 2016	02 Feb 2016
BH3_0.2-0.3	SE148342.002	LB094138	19 Jan 2016	25 Jan 2016	16 Feb 2016	01 Feb 2016	16 Feb 2016	02 Feb 2016
BH4_0.4-0.5	SE148342.003	LB094138	18 Jan 2016	25 Jan 2016	15 Feb 2016	01 Feb 2016	15 Feb 2016	02 Feb 2016
BH5_0.2-0.5	SE148342.004	LB094138	20 Jan 2016	25 Jan 2016	17 Feb 2016	01 Feb 2016	17 Feb 2016	02 Feb 2016
BH6_0.2-0.3	SE148342.005	LB094138	20 Jan 2016	25 Jan 2016	17 Feb 2016	01 Feb 2016	17 Feb 2016	02 Feb 2016
BH7_0.2-0.3	SE148342.006	LB094138	19 Jan 2016	25 Jan 2016	16 Feb 2016	01 Feb 2016	16 Feb 2016	02 Feb 2016
BH7_1.0-1.1	SE148342.007	LB094138	19 Jan 2016	25 Jan 2016	16 Feb 2016	01 Feb 2016	16 Feb 2016	02 Feb 2016
BH7_3.0-3.1	SE148342.008	LB094138	19 Jan 2016	25 Jan 2016	16 Feb 2016	01 Feb 2016	16 Feb 2016	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH9_0.2-0.3	SE148342.010	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH9_1.7-1.8	SE148342.011	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH9_2.9-3.0	SE148342.012	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH10_1.1-1.2	SE148342.014	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH11_1.2-1.3	SE148342.016	LB094138	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH12_1.2-1.3	SE148342.018	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH13_0.2-0.3	SE148342.019	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH14_0.2-0.3	SE148342.020	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH15_0.2-0.3	SE148342.021	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH15_1.1-1.2	SE148342.022	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH17_0.2-0.3	SE148342.024	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH18_0.2-0.3	SE148342.025	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil (continued)

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH19_0.2-0.3	SE148342.026	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH19_1.7-1.8	SE148342.027	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH20_0.7-0.8	SE148342.029	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH21_0.8-0.9	SE148342.031	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH23_0.2-0.3	SE148342.033	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH23_1.1-1.2	SE148342.034	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB094141	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH25_0.1-0.2	SE148342.036	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH26_0.1-0.2	SE148342.037	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH26_1.2-1.3	SE148342.038	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH28_0.3-0.4	SE148342.040	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
BH29_0.2-0.3	SE148342.041	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
QD1	SE148342.042	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016
QD2	SE148342.043	LB094142	21 Jan 2016	25 Jan 2016	18 Feb 2016	01 Feb 2016	18 Feb 2016	02 Feb 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093926	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093926	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093926	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093926	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093926	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093926	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093926	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH7_3.0-3.1	SE148342.008	LB093926	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH9_1.7-1.8	SE148342.011	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH13_0.2-0.3	SE148342.019	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH15_1.1-1.2	SE148342.022	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH25_0.1-0.2	SE148342.036	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content (continued)

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH28_0.3-0.4	SE148342.040	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
BH29_0.2-0.3	SE148342.041	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
QD1	SE148342.042	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
QD2	SE148342.043	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016
QTB1	SE148342.045	LB093926	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	02 Feb 2016	01 Feb 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093918	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093918	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_3.0-3.1	SE148342.008	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_1.7-1.8	SE148342.011	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH13_0.2-0.3	SE148342.019	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_1.1-1.2	SE148342.022	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH25_0.1-0.2	SE148342.036	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH28_0.3-0.4	SE148342.040	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH29_0.2-0.3	SE148342.041	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
QD1	SE148342.042	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
QD2	SE148342.043	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093918	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093918	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH7_3.0-3.1	SE148342.008	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_1.7-1.8	SE148342.011	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH13_0.2-0.3	SE148342.019	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH15_1.1-1.2	SE148342.022	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH25_0.1-0.2	SE148342.036	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH28_0.3-0.4	SE148342.040	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH29_0.2-0.3	SE148342.041	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
QD1	SE148342.042	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
QD2	SE148342.043	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093918	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093918	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_3.0-3.1	SE148342.008	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_1.7-1.8	SE148342.011	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH13_0.2-0.3	SE148342.019	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH15_1.1-1.2	SE148342.022	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH25_0.1-0.2	SE148342.036	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH28_0.3-0.4	SE148342.040	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH29_0.2-0.3	SE148342.041	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
QD1	SE148342.042	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
QD2	SE148342.043	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093918	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093918	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_3.0-3.1	SE148342.008	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_1.7-1.8	SE148342.011	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH13_0.2-0.3	SE148342.019	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_1.1-1.2	SE148342.022	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PCBs in Soil (continued) Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH25_0.1-0.2	SE148342.036	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH28_0.3-0.4	SE148342.040	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH29_0.2-0.3	SE148342.041	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
QD1	SE148342.042	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
QD2	SE148342.043	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

Total Recoverable Metals in Soil by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB094070	15 Jan 2016	25 Jan 2016	13 Jul 2016	29 Jan 2016	13 Jul 2016	02 Feb 2016
BH3_0.2-0.3	SE148342.002	LB094070	19 Jan 2016	25 Jan 2016	17 Jul 2016	29 Jan 2016	17 Jul 2016	02 Feb 2016
BH4_0.4-0.5	SE148342.003	LB094070	18 Jan 2016	25 Jan 2016	16 Jul 2016	29 Jan 2016	16 Jul 2016	02 Feb 2016
BH5_0.2-0.5	SE148342.004	LB094070	20 Jan 2016	25 Jan 2016	18 Jul 2016	29 Jan 2016	18 Jul 2016	02 Feb 2016
BH6_0.2-0.3	SE148342.005	LB094070	20 Jan 2016	25 Jan 2016	18 Jul 2016	29 Jan 2016	18 Jul 2016	02 Feb 2016
BH7_0.2-0.3	SE148342.006	LB094070	19 Jan 2016	25 Jan 2016	17 Jul 2016	29 Jan 2016	17 Jul 2016	02 Feb 2016
BH7_1.0-1.1	SE148342.007	LB094070	19 Jan 2016	25 Jan 2016	17 Jul 2016	29 Jan 2016	17 Jul 2016	02 Feb 2016
BH7_3.0-3.1	SE148342.008	LB094070	19 Jan 2016	25 Jan 2016	17 Jul 2016	29 Jan 2016	17 Jul 2016	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH9_0.2-0.3	SE148342.010	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH9_1.7-1.8	SE148342.011	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH9_2.9-3.0	SE148342.012	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH10_1.1-1.2	SE148342.014	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH11_1.2-1.3	SE148342.016	LB094070	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH12_1.2-1.3	SE148342.018	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH13_0.2-0.3	SE148342.019	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH14_0.2-0.3	SE148342.020	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH15_0.2-0.3	SE148342.021	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH15_1.1-1.2	SE148342.022	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH17_0.2-0.3	SE148342.024	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH18_0.2-0.3	SE148342.025	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH19_0.2-0.3	SE148342.026	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH19_1.7-1.8	SE148342.027	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH20_0.7-0.8	SE148342.029	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH21_0.8-0.9	SE148342.031	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH23_0.2-0.3	SE148342.033	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH23_1.1-1.2	SE148342.034	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB094071	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH25_0.1-0.2	SE148342.036	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH26_0.1-0.2	SE148342.037	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH26_1.2-1.3	SE148342.038	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH28_0.3-0.4	SE148342.040	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
BH29_0.2-0.3	SE148342.041	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
QD1	SE148342.042	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016
QD2	SE148342.043	LB094072	21 Jan 2016	25 Jan 2016	19 Jul 2016	29 Jan 2016	19 Jul 2016	02 Feb 2016

Trace Metals (Dissolved) in Water by ICPMS Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE148342.044	LB094192	21 Jan 2016	25 Jan 2016	19 Jul 2016	02 Feb 2016	19 Jul 2016	04 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093918	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093918	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093918	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH7_3.0-3.1	SE148342.008	LB093918	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_1.7-1.8	SE148342.011	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH13_0.2-0.3	SE148342.019	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093918	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH15_1.1-1.2	SE148342.022	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH25_0.1-0.2	SE148342.036	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH28_0.3-0.4	SE148342.040	LB093920	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
BH29_0.2-0.3	SE148342.041	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
QD1	SE148342.042	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016
QD2	SE148342.043	LB093921	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE148342.044	LB093892	21 Jan 2016	25 Jan 2016	28 Jan 2016	27 Jan 2016	07 Mar 2016	02 Feb 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093917	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093917	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093917	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093917	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_3.0-3.1	SE148342.008	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH9_1.7-1.8	SE148342.011	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH13_0.2-0.3	SE148342.019	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_1.1-1.2	SE148342.022	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH25_0.1-0.2	SE148342.036	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH28_0.3-0.4	SE148342.040	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH29_0.2-0.3	SE148342.041	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QD1	SE148342.042	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QD2	SE148342.043	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QTB1	SE148342.045	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QTS1	SE148342.046	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE148342.044	LB094014	21 Jan 2016	25 Jan 2016	28 Jan 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE148342.001	LB093917	15 Jan 2016	25 Jan 2016	29 Jan 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH3_0.2-0.3	SE148342.002	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH4_0.4-0.5	SE148342.003	LB093917	18 Jan 2016	25 Jan 2016	01 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH5_0.2-0.5	SE148342.004	LB093917	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH6_0.2-0.3	SE148342.005	LB093917	20 Jan 2016	25 Jan 2016	03 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_0.2-0.3	SE148342.006	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_1.0-1.1	SE148342.007	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH7_3.0-3.1	SE148342.008	LB093917	19 Jan 2016	25 Jan 2016	02 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH8_0.2-0.3	SE148342.009	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_0.2-0.3	SE148342.010	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_1.7-1.8	SE148342.011	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH9_2.9-3.0	SE148342.012	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_0.2-0.3	SE148342.013	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH10_1.1-1.2	SE148342.014	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_0.2-0.3	SE148342.015	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH11_1.2-1.3	SE148342.016	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_0.2-0.3	SE148342.017	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH12_1.2-1.3	SE148342.018	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016

HOLDING TIME SUMMARY

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH13_0.2-0.3	SE148342.019	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH14_0.2-0.3	SE148342.020	LB093917	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_0.2-0.3	SE148342.021	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH15_1.1-1.2	SE148342.022	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH16_0.2-0.3	SE148342.023	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH17_0.2-0.3	SE148342.024	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH18_0.2-0.3	SE148342.025	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_0.2-0.3	SE148342.026	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH19_1.7-1.8	SE148342.027	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.2-0.3	SE148342.028	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH20_0.7-0.8	SE148342.029	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.2-0.3	SE148342.030	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH21_0.8-0.9	SE148342.031	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH22_0.2-0.3	SE148342.032	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_0.2-0.3	SE148342.033	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH23_1.1-1.2	SE148342.034	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH24_0.2-0.3	SE148342.035	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH25_0.1-0.2	SE148342.036	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_0.1-0.2	SE148342.037	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH26_1.2-1.3	SE148342.038	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH27_0.2-0.3	SE148342.039	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH28_0.3-0.4	SE148342.040	LB093919	21 Jan 2016	25 Jan 2016	04 Feb 2016	28 Jan 2016	08 Mar 2016	02 Feb 2016
BH29_0.2-0.3	SE148342.041	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QD1	SE148342.042	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QD2	SE148342.043	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QTB1	SE148342.045	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016
QTS1	SE148342.046	LB094016	21 Jan 2016	25 Jan 2016	04 Feb 2016	29 Jan 2016	09 Mar 2016	02 Feb 2016

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE148342.044	LB094014	21 Jan 2016	25 Jan 2016	28 Jan 2016	28 Jan 2016	08 Mar 2016	01 Feb 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	89
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	87
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	91
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	87
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	94
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	91
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	94
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	91
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	95
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	93
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	92
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	92
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	89
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	93
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	88
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	84
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	118
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	105
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	81
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	83
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	129
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	112
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	78
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	82
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	84
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	85
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	95
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	83

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	76
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	76
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	76
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	82
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	78
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	82
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	78
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	76
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	72
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	76
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	76
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	74
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	86
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	72
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	74
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	74
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	72
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	72
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	72
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	78
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	80
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	74
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	76
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	72
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	72
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	76
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	74
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	78
d14-p-terphenyl (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	100
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	114

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	BH4_0.4-0.5	SE148342.003	%	60 - 130%	104
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	100
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	108
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	112
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	106
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	104
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	92
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	82
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	92
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	74
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	96
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	90
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	94
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	104
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	104
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	94
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	96
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	108
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	104
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	104
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	108
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	100
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	98
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	96
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	104
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1_0.1-0.2	SE148342.001	%	70 - 130%	76
	BH3_0.2-0.3	SE148342.002	%	70 - 130%	76
	BH4_0.4-0.5	SE148342.003	%	70 - 130%	76
	BH5_0.2-0.5	SE148342.004	%	70 - 130%	82
	BH6_0.2-0.3	SE148342.005	%	70 - 130%	78
	BH7_0.2-0.3	SE148342.006	%	70 - 130%	82
	BH7_1.0-1.1	SE148342.007	%	70 - 130%	76
	BH7_3.0-3.1	SE148342.008	%	70 - 130%	76
	BH8_0.2-0.3	SE148342.009	%	70 - 130%	78
	BH9_0.2-0.3	SE148342.010	%	70 - 130%	76
	BH9_1.7-1.8	SE148342.011	%	70 - 130%	76
	BH9_2.9-3.0	SE148342.012	%	70 - 130%	84
	BH10_0.2-0.3	SE148342.013	%	70 - 130%	72
	BH10_1.1-1.2	SE148342.014	%	70 - 130%	76
	BH11_0.2-0.3	SE148342.015	%	70 - 130%	76
	BH11_1.2-1.3	SE148342.016	%	70 - 130%	70
	BH12_0.2-0.3	SE148342.017	%	70 - 130%	76
	BH12_1.2-1.3	SE148342.018	%	70 - 130%	72
	BH13_0.2-0.3	SE148342.019	%	70 - 130%	74
	BH14_0.2-0.3	SE148342.020	%	70 - 130%	86
	BH15_0.2-0.3	SE148342.021	%	70 - 130%	72
	BH15_1.1-1.2	SE148342.022	%	70 - 130%	88
	BH16_0.2-0.3	SE148342.023	%	70 - 130%	74
	BH17_0.2-0.3	SE148342.024	%	70 - 130%	74
	BH18_0.2-0.3	SE148342.025	%	70 - 130%	72
	BH19_0.2-0.3	SE148342.026	%	70 - 130%	72
	BH19_1.7-1.8	SE148342.027	%	70 - 130%	74
	BH20_0.2-0.3	SE148342.028	%	70 - 130%	72
	BH20_0.7-0.8	SE148342.029	%	70 - 130%	74
	BH21_0.2-0.3	SE148342.030	%	70 - 130%	78
	BH21_0.8-0.9	SE148342.031	%	70 - 130%	72
	BH22_0.2-0.3	SE148342.032	%	70 - 130%	80

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH23_0.2-0.3	SE148342.033	%	70 - 130%	74
	BH23_1.1-1.2	SE148342.034	%	70 - 130%	74
	BH24_0.2-0.3	SE148342.035	%	70 - 130%	76
	BH25_0.1-0.2	SE148342.036	%	70 - 130%	72
	BH26_0.1-0.2	SE148342.037	%	70 - 130%	72
	BH26_1.2-1.3	SE148342.038	%	70 - 130%	74
	BH27_0.2-0.3	SE148342.039	%	70 - 130%	76
	BH28_0.3-0.4	SE148342.040	%	70 - 130%	74
	BH29_0.2-0.3	SE148342.041	%	70 - 130%	78
d14-p-terphenyl (Surrogate)	BH1_0.1-0.2	SE148342.001	%	70 - 130%	100
	BH3_0.2-0.3	SE148342.002	%	70 - 130%	114
	BH4_0.4-0.5	SE148342.003	%	70 - 130%	104
	BH5_0.2-0.5	SE148342.004	%	70 - 130%	100
	BH6_0.2-0.3	SE148342.005	%	70 - 130%	108
	BH7_0.2-0.3	SE148342.006	%	70 - 130%	112
	BH7_1.0-1.1	SE148342.007	%	70 - 130%	96
	BH7_3.0-3.1	SE148342.008	%	70 - 130%	98
	BH8_0.2-0.3	SE148342.009	%	70 - 130%	106
	BH9_0.2-0.3	SE148342.010	%	70 - 130%	104
	BH9_1.7-1.8	SE148342.011	%	70 - 130%	94
	BH9_2.9-3.0	SE148342.012	%	70 - 130%	92
	BH10_0.2-0.3	SE148342.013	%	70 - 130%	92
	BH10_1.1-1.2	SE148342.014	%	70 - 130%	100
	BH11_0.2-0.3	SE148342.015	%	70 - 130%	82
	BH11_1.2-1.3	SE148342.016	%	70 - 130%	94
	BH12_0.2-0.3	SE148342.017	%	70 - 130%	92
	BH12_1.2-1.3	SE148342.018	%	70 - 130%	96
	BH13_0.2-0.3	SE148342.019	%	70 - 130%	74
	BH14_0.2-0.3	SE148342.020	%	70 - 130%	96
	BH15_0.2-0.3	SE148342.021	%	70 - 130%	90
	BH15_1.1-1.2	SE148342.022	%	70 - 130%	74
	BH16_0.2-0.3	SE148342.023	%	70 - 130%	94
	BH17_0.2-0.3	SE148342.024	%	70 - 130%	104
	BH18_0.2-0.3	SE148342.025	%	70 - 130%	104
	BH19_0.2-0.3	SE148342.026	%	70 - 130%	94
	BH19_1.7-1.8	SE148342.027	%	70 - 130%	92
	BH20_0.2-0.3	SE148342.028	%	70 - 130%	96
	BH20_0.7-0.8	SE148342.029	%	70 - 130%	88
	BH21_0.2-0.3	SE148342.030	%	70 - 130%	108
	BH21_0.8-0.9	SE148342.031	%	70 - 130%	94
	BH22_0.2-0.3	SE148342.032	%	70 - 130%	104
	BH23_0.2-0.3	SE148342.033	%	70 - 130%	104
	BH23_1.1-1.2	SE148342.034	%	70 - 130%	100
	BH24_0.2-0.3	SE148342.035	%	70 - 130%	108
	BH25_0.1-0.2	SE148342.036	%	70 - 130%	100
	BH26_0.1-0.2	SE148342.037	%	70 - 130%	98
	BH26_1.2-1.3	SE148342.038	%	70 - 130%	96
	BH27_0.2-0.3	SE148342.039	%	70 - 130%	96
	BH28_0.3-0.4	SE148342.040	%	70 - 130%	104
	BH29_0.2-0.3	SE148342.041	%	70 - 130%	102
d5-nitrobenzene (Surrogate)	BH1_0.1-0.2	SE148342.001	%	70 - 130%	88
	BH3_0.2-0.3	SE148342.002	%	70 - 130%	88
	BH4_0.4-0.5	SE148342.003	%	70 - 130%	90
	BH5_0.2-0.5	SE148342.004	%	70 - 130%	88
	BH6_0.2-0.3	SE148342.005	%	70 - 130%	92
	BH7_0.2-0.3	SE148342.006	%	70 - 130%	96
	BH7_1.0-1.1	SE148342.007	%	70 - 130%	90
	BH7_3.0-3.1	SE148342.008	%	70 - 130%	90
	BH8_0.2-0.3	SE148342.009	%	70 - 130%	88
	BH9_0.2-0.3	SE148342.010	%	70 - 130%	88
	BH9_1.7-1.8	SE148342.011	%	70 - 130%	88

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	BH9_2.9-3.0	SE148342.012	%	70 - 130%	98
	BH10_0.2-0.3	SE148342.013	%	70 - 130%	84
	BH10_1.1-1.2	SE148342.014	%	70 - 130%	92
	BH11_0.2-0.3	SE148342.015	%	70 - 130%	88
	BH11_1.2-1.3	SE148342.016	%	70 - 130%	80
	BH12_0.2-0.3	SE148342.017	%	70 - 130%	86
	BH12_1.2-1.3	SE148342.018	%	70 - 130%	82
	BH13_0.2-0.3	SE148342.019	%	70 - 130%	72
	BH14_0.2-0.3	SE148342.020	%	70 - 130%	90
	BH15_0.2-0.3	SE148342.021	%	70 - 130%	76
	BH15_1.1-1.2	SE148342.022	%	70 - 130%	82
	BH16_0.2-0.3	SE148342.023	%	70 - 130%	80
	BH17_0.2-0.3	SE148342.024	%	70 - 130%	88
	BH18_0.2-0.3	SE148342.025	%	70 - 130%	84
	BH19_0.2-0.3	SE148342.026	%	70 - 130%	82
	BH19_1.7-1.8	SE148342.027	%	70 - 130%	82
	BH20_0.2-0.3	SE148342.028	%	70 - 130%	80
	BH20_0.7-0.8	SE148342.029	%	70 - 130%	76
	BH21_0.2-0.3	SE148342.030	%	70 - 130%	80
	BH21_0.8-0.9	SE148342.031	%	70 - 130%	86
	BH22_0.2-0.3	SE148342.032	%	70 - 130%	92
	BH23_0.2-0.3	SE148342.033	%	70 - 130%	84
	BH23_1.1-1.2	SE148342.034	%	70 - 130%	84
	BH24_0.2-0.3	SE148342.035	%	70 - 130%	78
	BH25_0.1-0.2	SE148342.036	%	70 - 130%	78
	BH26_0.1-0.2	SE148342.037	%	70 - 130%	86
	BH26_1.2-1.3	SE148342.038	%	70 - 130%	80
	BH27_0.2-0.3	SE148342.039	%	70 - 130%	90
	BH28_0.3-0.4	SE148342.040	%	70 - 130%	88
	BH29_0.2-0.3	SE148342.041	%	70 - 130%	90

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	89
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	87
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	91
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	87
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	94
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	91
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	94
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	91
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	95
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	93
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	92
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	92
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	89
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	93
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	88
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	84
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	118
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	105
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	81
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	83
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	129
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	112
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	78
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	82
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	84
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	85
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	95
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	83

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	86
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	83
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	75
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	84
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	87
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	82
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	81
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	78
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	81
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	78
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	86
	BH9_2.9-3.0	SE148342.012	%	60 - 130%	88
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	75
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	81
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	87
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	84
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	81
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	80
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	79
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	76
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	81
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	81
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	81
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	80
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	74
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	75
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	79
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	82
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	80
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	78
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	83
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	74
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	87
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	83
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	76
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	83
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	75
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	82
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	85
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	71
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	75
	QD1	SE148342.042	%	60 - 130%	78
	QD2	SE148342.043	%	60 - 130%	78
	QTB1	SE148342.045	%	60 - 130%	82
	QTS1	SE148342.046	%	60 - 130%	78
d4-1,2-dichloroethane (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	77
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	101
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	90
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	102
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	103
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	98
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	96
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	95
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	106
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	104
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	100
	BH9_2.9-3.0	SE148342.012	%	60 - 130%	104
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	90
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	96
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	80
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	79

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued) Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH12_0.2-0.3	SE148342.017	%	60 - 130%	96
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	94
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	99
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	95
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	87
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	82
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	84
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	85
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	85
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	80
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	78
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	89
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	87
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	86
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	93
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	88
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	96
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	94
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	102
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	88
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	77
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	86
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	89
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	88
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	96
	QD1	SE148342.042	%	60 - 130%	89
	QD2	SE148342.043	%	60 - 130%	83
	QTB1	SE148342.045	%	60 - 130%	91
	QTS1	SE148342.046	%	60 - 130%	80
d8-toluene (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	83
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	105
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	96
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	109
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	115
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	106
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	113
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	104
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	116
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	110
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	112
	BH9_2.9-3.0	SE148342.012	%	60 - 130%	113
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	100
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	114
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	90
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	84
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	109
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	107
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	106
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	102
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	83
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	80
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	78
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	82
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	80
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	71
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	73
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	83
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	83
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	82
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	90
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	81

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH23_0.2-0.3	SE148342.033	%	60 - 130%	90
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	89
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	95
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	86
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	74
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	81
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	84
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	81
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	86
	QD1	SE148342.042	%	60 - 130%	85
	QD2	SE148342.043	%	60 - 130%	80
	QTB1	SE148342.045	%	60 - 130%	86
	QTS1	SE148342.046	%	60 - 130%	76
Dibromofluoromethane (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	71
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	91
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	80
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	90
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	94
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	88
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	86
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	86
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	94
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	91
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	89
	BH9_2.9-3.0	SE148342.012	%	60 - 130%	93
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	82
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	86
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	71
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	70
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	86
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	85
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	87
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	83
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	77
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	72
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	71
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	76
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	74
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	100
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	107
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	75
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	73
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	74
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	80
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	74
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	82
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	79
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	84
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	76
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	85
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	73
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	75
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	74
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	77
	QD1	SE148342.042	%	60 - 130%	76
	QD2	SE148342.043	%	60 - 130%	71
	QTB1	SE148342.045	%	60 - 130%	77
	QTS1	SE148342.046	%	60 - 130%	102

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued) Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE148342.044	%	40 - 130%	97
d4-1,2-dichloroethane (Surrogate)	QR1	SE148342.044	%	40 - 130%	86
d8-toluene (Surrogate)	QR1	SE148342.044	%	40 - 130%	87
Dibromofluoromethane (Surrogate)	QR1	SE148342.044	%	40 - 130%	90

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	86
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	83
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	75
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	84
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	87
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	82
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	81
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	78
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	81
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	78
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	86
	BH9_2.9-3.0	SE148342.012	%	60 - 130%	88
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	75
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	81
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	87
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	84
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	81
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	80
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	79
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	76
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	81
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	81
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	81
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	80
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	74
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	75
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	79
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	82
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	80
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	78
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	83
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	74
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	87
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	83
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	76
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	83
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	75
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	82
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	85
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	71
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	75
	QD1	SE148342.042	%	60 - 130%	78
	QD2	SE148342.043	%	60 - 130%	78
d4-1,2-dichloroethane (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	77
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	101
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	90
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	102
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	103
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	98
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	96
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	95
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	106
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	104
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	100

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH9_2.9-3.0	SE148342.012	%	60 - 130%	104
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	90
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	96
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	80
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	79
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	96
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	94
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	99
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	95
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	87
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	82
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	84
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	85
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	85
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	80
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	78
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	89
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	87
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	86
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	93
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	88
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	96
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	94
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	102
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	88
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	77
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	86
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	89
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	88
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	96
	QD1	SE148342.042	%	60 - 130%	89
	QD2	SE148342.043	%	60 - 130%	83
d8-toluene (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	83
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	105
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	96
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	109
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	115
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	106
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	113
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	104
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	116
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	110
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	112
	BH9_2.9-3.0	SE148342.012	%	60 - 130%	113
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	100
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	114
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	90
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	84
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	109
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	107
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	106
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	102
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	83
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	80
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	78
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	82
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	80
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	71
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	73
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	83
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	83

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH21_0.2-0.3	SE148342.030	%	60 - 130%	82
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	90
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	81
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	90
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	89
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	95
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	86
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	74
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	81
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	84
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	81
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	86
	QD1	SE148342.042	%	60 - 130%	85
	QD2	SE148342.043	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	BH1_0.1-0.2	SE148342.001	%	60 - 130%	71
	BH3_0.2-0.3	SE148342.002	%	60 - 130%	91
	BH4_0.4-0.5	SE148342.003	%	60 - 130%	80
	BH5_0.2-0.5	SE148342.004	%	60 - 130%	90
	BH6_0.2-0.3	SE148342.005	%	60 - 130%	94
	BH7_0.2-0.3	SE148342.006	%	60 - 130%	88
	BH7_1.0-1.1	SE148342.007	%	60 - 130%	86
	BH7_3.0-3.1	SE148342.008	%	60 - 130%	86
	BH8_0.2-0.3	SE148342.009	%	60 - 130%	94
	BH9_0.2-0.3	SE148342.010	%	60 - 130%	91
	BH9_1.7-1.8	SE148342.011	%	60 - 130%	89
	BH9_2.9-3.0	SE148342.012	%	60 - 130%	93
	BH10_0.2-0.3	SE148342.013	%	60 - 130%	82
	BH10_1.1-1.2	SE148342.014	%	60 - 130%	86
	BH11_0.2-0.3	SE148342.015	%	60 - 130%	71
	BH11_1.2-1.3	SE148342.016	%	60 - 130%	70
	BH12_0.2-0.3	SE148342.017	%	60 - 130%	86
	BH12_1.2-1.3	SE148342.018	%	60 - 130%	85
	BH13_0.2-0.3	SE148342.019	%	60 - 130%	87
	BH14_0.2-0.3	SE148342.020	%	60 - 130%	83
	BH15_0.2-0.3	SE148342.021	%	60 - 130%	77
	BH15_1.1-1.2	SE148342.022	%	60 - 130%	72
	BH16_0.2-0.3	SE148342.023	%	60 - 130%	71
	BH17_0.2-0.3	SE148342.024	%	60 - 130%	76
	BH18_0.2-0.3	SE148342.025	%	60 - 130%	74
	BH19_0.2-0.3	SE148342.026	%	60 - 130%	100
	BH19_1.7-1.8	SE148342.027	%	60 - 130%	107
	BH20_0.2-0.3	SE148342.028	%	60 - 130%	75
	BH20_0.7-0.8	SE148342.029	%	60 - 130%	73
	BH21_0.2-0.3	SE148342.030	%	60 - 130%	74
	BH21_0.8-0.9	SE148342.031	%	60 - 130%	80
	BH22_0.2-0.3	SE148342.032	%	60 - 130%	74
	BH23_0.2-0.3	SE148342.033	%	60 - 130%	82
	BH23_1.1-1.2	SE148342.034	%	60 - 130%	79
	BH24_0.2-0.3	SE148342.035	%	60 - 130%	84
	BH25_0.1-0.2	SE148342.036	%	60 - 130%	76
	BH26_0.1-0.2	SE148342.037	%	60 - 130%	85
	BH26_1.2-1.3	SE148342.038	%	60 - 130%	73
	BH27_0.2-0.3	SE148342.039	%	60 - 130%	75
	BH28_0.3-0.4	SE148342.040	%	60 - 130%	74
	BH29_0.2-0.3	SE148342.041	%	60 - 130%	77
	QD1	SE148342.042	%	60 - 130%	76
	QD2	SE148342.043	%	60 - 130%	71

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE148342.044	%	40 - 130%	97
d4-1,2-dichloroethane (Surrogate)	QR1	SE148342.044	%	60 - 130%	86
d8-toluene (Surrogate)	QR1	SE148342.044	%	40 - 130%	87
Dibromofluoromethane (Surrogate)	QR1	SE148342.044	%	40 - 130%	90

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB094198.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB094138.001	Mercury	mg/kg	0.01	<0.01
LB094141.001	Mercury	mg/kg	0.01	<0.01
LB094142.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB093918.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	77
LB093920.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81
LB093921.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1

METHOD BLANKS

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB093921.001		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	104

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB093918.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	82
		d14-p-terphenyl (Surrogate)	%	-	102
LB093920.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	70
		d14-p-terphenyl (Surrogate)	%	-	90
LB093921.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB093921.001		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB093918.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	96
		2-fluorobiphenyl (Surrogate)	%	-	82
		d14-p-terphenyl (Surrogate)	%	-	102
LB093920.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	80
		2-fluorobiphenyl (Surrogate)	%	-	70
		d14-p-terphenyl (Surrogate)	%	-	90
LB093921.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB093921.001		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	80
		2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	96

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB093918.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	77
LB093920.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81
LB093921.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	104

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB094070.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB094071.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB094072.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Recoverable Metals in Soil by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB094072.001	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB094192.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB093918.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB093920.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB093921.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB093892.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB093917.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	96
		d4-1,2-dichloroethane (Surrogate)	%	-	99
		d8-toluene (Surrogate)	%	-	107
		Bromofluorobenzene (Surrogate)	%	-	75
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB093919.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	91
		d4-1,2-dichloroethane (Surrogate)	%	-	98
		d8-toluene (Surrogate)	%	-	96
		Bromofluorobenzene (Surrogate)	%	-	92
	Totals	Total BTEX	mg/kg	0.6	<0.6

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB094016.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	77
		d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	86
		Bromofluorobenzene (Surrogate)	%	-	81
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB094014.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	95
		d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	99

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB093917.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	96
		d4-1,2-dichloroethane (Surrogate)	%	-	99
		d8-toluene (Surrogate)	%	-	107
LB093919.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	91
		d4-1,2-dichloroethane (Surrogate)	%	-	98
		d8-toluene (Surrogate)	%	-	96
LB094016.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	77
		d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	86

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB094014.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	90
		d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	86
		Bromofluorobenzene (Surrogate)	%	-	95

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148402.005	LB094198.014	Mercury	µg/L	0.0001	<0.0001	0.0000	200	95
SE148402.007	LB094198.017	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.007	LB094138.014	Mercury	mg/kg	0.01	0.04	0.03	162	0
SE148342.016	LB094138.024	Mercury	mg/kg	0.01	<0.01	<0.01	200	0
SE148342.026	LB094141.014	Mercury	mg/kg	0.01	0.01	0.01	200	0
SE148342.035	LB094141.024	Mercury	mg/kg	0.01	0.02	0.02	200	0
SE148364.002	LB094142.014	Mercury	mg/kg	0.01	0.67	0.70	37	4
SE148366.004	LB094142.024	Mercury	mg/kg	0.01	0.07	0.06	106	11

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093926.011	% Moisture	%w/w	0.5	6.5	6.3	46	4
SE148342.020	LB093926.022	% Moisture	%w/w	0.5	16	15	36	4
SE148342.030	LB093926.033	% Moisture	%w/w	0.5	6.3	6.0	46	6
SE148342.040	LB093926.044	% Moisture	%w/w	0.5	11	11	39	1
SE148342.045	LB093926.049	% Moisture	%w/w	0.5	<0.5	<0.5	200	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093918.015		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.13	30	2
SE148342.020	LB093918.026		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.020	LB093918.026		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.14	30	1
SE148342.025	LB093920.010		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	0.18	30	3
SE148342.040	LB093920.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	1.4	2.0	36	33
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	2.1	2.8	34	30
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0

DUPLICATES

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.040	LB093920.027		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.16	30	13

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093918.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6
SE148342.020	LB093918.025		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE148342.025	LB093920.027		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE148342.040	LB093920.025		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.040	LB093920.025		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093918.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6
SE148342.020	LB093918.025		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	200	0
				TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE148342.025	LB093920.028		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0

DUPLICATES

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.025	LB093920.028		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE148342.040	LB093920.025		Naphthalene	mg/kg	0.1	<0.1	<0.1	173	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	155	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.1	135	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.3	0.3	69	4
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.2	0.2	95	6
			Pyrene	mg/kg	0.1	<0.1	<0.1	141	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	141	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	173	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	163	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	184	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE148364.006	LB093921.023		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.01	200	0
			Anthracene	mg/kg	0.1	<0.1	0	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Pyrene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Chrysene	mg/kg	0.1	<0.1	0.01	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148364.006	LB093921.023		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.39	30	12
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.37	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	0

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093918.015		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2
SE148342.020	LB093918.026		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1
SE148342.025	LB093920.010		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	3
SE148342.040	LB093920.027		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	13
SE148367.001	LB093921.021		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148367.001	LB093921.021		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	8

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.007	LB094070.014	Arsenic, As	mg/kg	3	10	8	41	23
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	105	9
		Chromium, Cr	mg/kg	0.3	20	24	32	17
		Copper, Cu	mg/kg	0.5	14	15	34	9
		Lead, Pb	mg/kg	1	21	18	35	14
		Nickel, Ni	mg/kg	0.5	12	19	33	43 ②
		Zinc, Zn	mg/kg	0.5	69	73	33	5
SE148342.016	LB094070.024	Arsenic, As	mg/kg	3	10	14	39	36
		Cadmium, Cd	mg/kg	0.3	<0.3	0.4	129	20
		Chromium, Cr	mg/kg	0.3	11	14	34	21
		Copper, Cu	mg/kg	0.5	7.3	10	36	31
		Lead, Pb	mg/kg	1	12	14	38	13
		Nickel, Ni	mg/kg	0.5	0.6	<0.5	124	14
		Zinc, Zn	mg/kg	0.5	5.3	6.4	64	20
SE148342.035	LB094071.024	Arsenic, As	mg/kg	3	3	<3	63	22
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	108	8
		Chromium, Cr	mg/kg	0.3	120	110	30	10
		Copper, Cu	mg/kg	0.5	29	25	32	16
		Lead, Pb	mg/kg	1	9	8	42	7
		Nickel, Ni	mg/kg	0.5	95	83	31	13
		Zinc, Zn	mg/kg	0.5	65	60	33	8
SE148364.002	LB094072.014	Cadmium, Cd	mg/kg	0.3	0.3	0.2	157	0
SE148366.005	LB094072.024	Arsenic, As	mg/kg	3	<1	<1	152	0
		Cadmium, Cd	mg/kg	0.3	<0.1	<0.1	200	0
		Chromium, Cr	mg/kg	0.3	2.6	3.4	46	27
		Copper, Cu	mg/kg	0.5	2.6	5.9	42	77 ②
		Lead, Pb	mg/kg	1	3	14	42	124 ②
		Nickel, Ni	mg/kg	0.5	1.4	2.2	57	44
		Zinc, Zn	mg/kg	0.5	17	33	38	62 ②

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148402.006	LB094192.014	Arsenic, As	μg/L	1	<1	<1	200	0
		Cadmium, Cd	μg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	μg/L	1	<1	<1	200	0
		Copper, Cu	μg/L	1	1	<1	115	5
		Lead, Pb	μg/L	1	<1	<1	200	0
		Nickel, Ni	μg/L	1	11	11	24	3
		Zinc, Zn	μg/L	5	17	17	44	1
SE148437.003	LB094192.020	Zinc, Zn	μg/L	5	1500	1400	15	7

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093918.014	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	<45	200	0
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
		TRH C10-C40 Total	mg/kg	210	<210	<210	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093918.014	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE148342.020	LB093918.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE148342.025	LB093920.026		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE148342.040	LB093920.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE148364.006	LB093921.022		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093917.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	4.3	50	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.2	4.9	50	6
			d8-toluene (Surrogate)	mg/kg	-	5.5	5.4	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	50	2
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE148342.020	LB093917.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.020	LB093917.025	Monocyclic Aromatic	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	4.5	50	7
			d8-toluene (Surrogate)	mg/kg	-	5.1	4.9	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.8	50	2
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE148342.030	LB093919.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.8	50	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.3	50	1
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.2	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	4.1	50	5
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE148342.040	LB093919.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	148	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	4.1	50	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5.0	50	12
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.5	50	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.5	3.6	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE148364.005	LB094016.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	50	13
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	4.4	50	11
			d8-toluene (Surrogate)	mg/kg	-	4.4	3.9	50	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.6	50	3
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE148364.006	LB094016.016	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.5	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.3	50	8
			d8-toluene (Surrogate)	mg/kg	-	4.2	3.9	50	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	3.9	50	7
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148402.007	LB094014.014	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	0.13	200	0
			Toluene	µg/L	0.5	<0.5	0.45	142	0
			Ethylbenzene	µg/L	0.5	<0.5	0.17	200	0
			m/p-xylene	µg/L	1	<1	0.16	200	0
			o-xylene	µg/L	0.5	<0.5	0.06	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.29	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.6	4.6	30	1
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.6	4.56	30	1
			d8-toluene (Surrogate)	µg/L	-	4.5	4.39	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	4.8	4.84	30	1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148342.010	LB093917.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	4.3	30	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.2	4.9	30	6
			d8-toluene (Surrogate)	mg/kg	-	5.5	5.4	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE148342.020	LB093917.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	4.5	30	7
			d8-toluene (Surrogate)	mg/kg	-	5.1	4.9	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE148342.030	LB093919.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.8	30	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.3	30	1
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.2	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	4.1	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE148342.040	LB093919.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	4.1	30	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5.0	30	12
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.5	30	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.5	3.6	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE148364.005	LB094016.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	30	13
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	4.4	30	11
			d8-toluene (Surrogate)	mg/kg	-	4.4	3.9	30	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.6	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE148364.006	LB094016.016		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.5	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.3	30	8
			d8-toluene (Surrogate)	mg/kg	-	4.2	3.9	30	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	3.9	30	7
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148402.007	LB094014.014		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.6	4.6	30	1
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.6	4.56	30	1
			d8-toluene (Surrogate)	µg/L	-	4.5	4.39	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	4.8	4.84	30	1
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.13	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	-0.97	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094138.002		Mercury	mg/kg	0.01	0.19	0.2	70 - 130	97
LB094141.002		Mercury	mg/kg	0.01	0.19	0.2	70 - 130	96
LB094142.002		Mercury	mg/kg	0.01	0.19	0.2	70 - 130	96

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093918.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	83
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	83
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	77
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	88
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	99
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	104
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.11	0.15	40 - 130	74
LB093920.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	93
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	92
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	86
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	94
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	105
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	97
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	85
LB093921.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	105
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	114
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	116
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	124
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	124
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	112
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	107

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093918.002		Dichlorvos	mg/kg	0.5	2.4	2	60 - 140	118
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	85
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	91
		Ethion	mg/kg	0.2	1.9	2	60 - 140	93
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
LB093920.002		Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	97
		Diazinon (Dimpylate)	mg/kg	0.5	1.6	2	60 - 140	81
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	101
		Ethion	mg/kg	0.2	1.8	2	60 - 140	89
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	70
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
LB093921.002		Dichlorvos	mg/kg	0.5	2.0	2	60 - 140	99
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	94
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	89
		Ethion	mg/kg	0.2	2.0	2	60 - 140	99
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093918.002		Naphthalene	mg/kg	0.1	3.7	4	60 - 140	93
		Acenaphthylene	mg/kg	0.1	4.1	4	60 - 140	104
		Acenaphthene	mg/kg	0.1	3.6	4	60 - 140	90
		Phenanthrene	mg/kg	0.1	3.8	4	60 - 140	96
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	102
		Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	104
		Pyrene	mg/kg	0.1	3.8	4	60 - 140	95
		Benzo(a)pyrene	mg/kg	0.1	3.9	4	60 - 140	98
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093920.002		Naphthalene	mg/kg	0.1	3.7	4	60 - 140	93
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	98
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	97
		Phenanthrene	mg/kg	0.1	5.1	4	60 - 140	127
		Anthracene	mg/kg	0.1	5.2	4	60 - 140	129
		Fluoranthene	mg/kg	0.1	5.1	4	60 - 140	127
		Pyrene	mg/kg	0.1	4.6	4	60 - 140	115
		Benzo(a)pyrene	mg/kg	0.1	3.7	4	60 - 140	93
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	70
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
LB093921.002		Naphthalene	mg/kg	0.1	3.8	4	60 - 140	96
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	97
		Phenanthrene	mg/kg	0.1	4.0	4	60 - 140	101
		Anthracene	mg/kg	0.1	4.4	4	60 - 140	110
		Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	105
		Pyrene	mg/kg	0.1	4.0	4	60 - 140	99
		Benzo(a)pyrene	mg/kg	0.1	4.0	4	60 - 140	100
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093918.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	112
LB093920.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	125
LB093921.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	119

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094070.002	Arsenic, As	mg/kg	3	48	50	80 - 120	95
	Cadmium, Cd	mg/kg	0.3	49	50	80 - 120	98
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	95
	Copper, Cu	mg/kg	0.5	47	50	80 - 120	95
	Lead, Pb	mg/kg	1	48	50	80 - 120	96
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	98
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	98
LB094071.002	Arsenic, As	mg/kg	3	48	50	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	100
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	96
	Copper, Cu	mg/kg	0.5	48	50	80 - 120	97
	Lead, Pb	mg/kg	1	49	50	80 - 120	97
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	98
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	100
LB094072.002	Arsenic, As	mg/kg	3	49	50	80 - 120	99
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	101
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	99
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	100
	Lead, Pb	mg/kg	1	50	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	51	50	80 - 120	101
	Zinc, Zn	mg/kg	0.5	51	50	80 - 120	102

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094192.002	Arsenic, As	µg/L	1	18	20	80 - 120	92
	Cadmium, Cd	µg/L	0.1	19	20	80 - 120	95
	Chromium, Cr	µg/L	1	19	20	80 - 120	93
	Copper, Cu	µg/L	1	19	20	80 - 120	95
	Lead, Pb	µg/L	1	20	20	80 - 120	101
	Nickel, Ni	µg/L	1	19	20	80 - 120	97
	Zinc, Zn	µg/L	5	19	20	80 - 120	93

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093918.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	105
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	103
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	100
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	42	40	60 - 140	105
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	103
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100
LB093920.002		TRH C10-C14	mg/kg	20	46	40	60 - 140	115
		TRH C15-C28	mg/kg	45	45	40	60 - 140	113
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	44	40	60 - 140	110
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	103
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	85
LB093921.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	105
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	110
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	88
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	43	40	60 - 140	108
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	100
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093892.002		TRH C10-C14	µg/L	50	1100	1200	60 - 140	94
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	115
		TRH C29-C36	µg/L	200	1500	1200	60 - 140	124
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1200	1200	60 - 140	103
		TRH >C16-C34 (F3)	µg/L	500	1500	1200	60 - 140	124
		TRH >C34-C40 (F4)	µg/L	500	730	600	60 - 140	122

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093917.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.5	2.9	60 - 140	85
		Toluene	mg/kg	0.1	2.8	2.9	60 - 140	98
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	71
		m/p-xylene	mg/kg	0.2	4.0	5.8	60 - 140	69
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	71
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	5	60 - 140	98
		d8-toluene (Surrogate)	mg/kg	-	5.0	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
LB093919.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	71
		Toluene	mg/kg	0.1	2.2	2.9	60 - 140	74
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	73
		m/p-xylene	mg/kg	0.2	4.3	5.8	60 - 140	75
		o-xylene	mg/kg	0.1	2.2	2.9	60 - 140	76
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
LB094016.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.3	2.9	60 - 140	79
		Toluene	mg/kg	0.1	2.4	2.9	60 - 140	82
		Ethylbenzene	mg/kg	0.1	2.4	2.9	60 - 140	83
		m/p-xylene	mg/kg	0.2	5.0	5.8	60 - 140	86
		o-xylene	mg/kg	0.1	2.5	2.9	60 - 140	86
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	77
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
		d8-toluene (Surrogate)	mg/kg	-	4.3	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094014.002	Monocyclic Aromatic	Benzene	µg/L	0.5	50	45.45	60 - 140	110
		Toluene	µg/L	0.5	50	45.45	60 - 140	110
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	110
		m/p-xylene	µg/L	1	99	90.9	60 - 140	109
		o-xylene	µg/L	0.5	50	45.45	60 - 140	110
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.2	5	60 - 140	104
		d8-toluene (Surrogate)	µg/L	-	4.6	5	60 - 140	91
		Bromofluorobenzene (Surrogate)	µg/L	-	4.7	5	60 - 140	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB093917.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	86
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	69
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	5	60 - 140	98
		d8-toluene (Surrogate)	mg/kg	-	5.0	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	107
LB093919.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	82
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	68
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	101
LB094016.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	91
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	76
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	77
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
		d8-toluene (Surrogate)	mg/kg	-	4.3	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	110

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094014.002		TRH C6-C10	µg/L	50	940	946.63	60 - 140	99
		TRH C6-C9	µg/L	40	740	818.71	60 - 140	91
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		d8-toluene (Surrogate)	µg/L	-	5.1	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	µg/L	-	5.2	5	60 - 140	103
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	640	639.67	60 - 140	100

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148332.034	LB094198.004	Mercury	mg/L	0.0001	0.0075	<0.0001	0.008	93

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148334.061	LB094138.004	Mercury	mg/kg	0.01	0.21	0.05932447213	0.2	77
SE148342.017	LB094141.004	Mercury	mg/kg	0.01	0.20	<0.01	0.2	95
SE148342.036	LB094142.004	Mercury	mg/kg	0.01	0.22	0.02	0.2	99

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093918.004	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Lindane	mg/kg	0.1	<0.1	<0.1	-	-
		Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	92
		Aldrin	mg/kg	0.1	0.2	<0.1	0.2	92
		Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	83
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
		Dieldrin	mg/kg	0.2	<0.2	<0.2	0.2	96
		Endrin	mg/kg	0.2	0.2	<0.2	0.2	107
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	91
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
		Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
		Mirex	mg/kg	0.1	<0.1	<0.1	-	-
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	-	88
SE148342.023	LB093920.007	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Lindane	mg/kg	0.1	<0.1	<0.1	-	-
		Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	91
		Aldrin	mg/kg	0.1	0.2	<0.1	0.2	96
		Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	84
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
		Dieldrin	mg/kg	0.2	<0.2	<0.2	0.2	93
		Endrin	mg/kg	0.2	0.2	<0.2	0.2	105
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	89

MATRIX SPIKES

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.023	LB093920.007		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.13	-	91

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093918.027		Dichlorvos	mg/kg	0.5	2.2	<0.5	2	111
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.9	<0.5	2	92
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.1	<0.2	2	100
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	2.4	<0.2	2	119
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	74
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98
SE148342.023	LB093920.028		Dichlorvos	mg/kg	0.5	2.0	<0.5	2	100
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.8	<0.5	2	91
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.1	<0.2	2	103
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.8	<0.2	2	86
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	72
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	108
SE148342.041	LB093921.022		Dichlorvos	mg/kg	0.5	1.7	<0.5	2	86
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.7	<0.5	2	83
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	<0.2	2	88
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.7	<0.2	2	85
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093918.027		Naphthalene	mg/kg	0.1	3.8	<0.1	4	93
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.1	<0.1	4	102
			Acenaphthene	mg/kg	0.1	3.7	<0.1	4	92
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.6	0.2	4	108
			Anthracene	mg/kg	0.1	4.4	<0.1	4	108
			Fluoranthene	mg/kg	0.1	5.1	0.4	4	118
			Pyrene	mg/kg	0.1	5.2	0.3	4	123

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093918.027		Benzo(a)anthracene	mg/kg	0.1	1.6	0.3	-	-
			Chrysene	mg/kg	0.1	0.9	0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.9	0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	0.9	0.2	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.7	0.2	4	114
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.6	0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	0.4	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	5.1	0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	5.2	0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	5.2	0.3	-	-
			Total PAH (18)	mg/kg	0.8	41	1.9	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	88
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	74
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98
SE148342.023	LB093920.027		Naphthalene	mg/kg	0.1	3.8	0.1	4	91
			2-methylnaphthalene	mg/kg	0.1	0.2	0.2	-	-
			1-methylnaphthalene	mg/kg	0.1	0.2	0.2	-	-
			Acenaphthylene	mg/kg	0.1	3.9	<0.1	4	98
			Acenaphthene	mg/kg	0.1	3.7	<0.1	4	92
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.5	0.2	4	107
			Anthracene	mg/kg	0.1	4.5	<0.1	4	112
			Fluoranthene	mg/kg	0.1	4.3	<0.1	4	107
			Pyrene	mg/kg	0.1	3.9	<0.1	4	96
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.7	<0.1	4	90
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	3.7	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.8	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.7	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	33	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	84
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	72
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	108
SE148342.041	LB093921.022		Naphthalene	mg/kg	0.1	3.8	<0.1	4	94
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.1	<0.1	4	103
			Acenaphthene	mg/kg	0.1	3.7	<0.1	4	92
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.9	<0.1	4	97
			Anthracene	mg/kg	0.1	4.2	<0.1	4	105
			Fluoranthene	mg/kg	0.1	4.3	<0.1	4	106
			Pyrene	mg/kg	0.1	3.8	<0.1	4	95
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.8	<0.1	4	95
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	3.8	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.9	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.9	<0.2	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

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PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.041	LB093921.022		Total PAH (18)	mg/kg	0.8	32	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	92
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	96

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093918.004		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.5	<0.2	0.4	113
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	95
SE148342.023	LB093920.007		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.5	<0.2	0.4	116
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	87

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148334.061	LB094070.004		Arsenic, As	mg/kg	3	45	6.93474585211	50	76
			Cadmium, Cd	mg/kg	0.3	39	0.32400879996	50	77
			Chromium, Cr	mg/kg	0.3	50	12.3392877808	50	75
			Copper, Cu	mg/kg	0.5	66	28.4445997936	50	75
			Lead, Pb	mg/kg	1	84	50.6260861302	50	67 ④
			Nickel, Ni	mg/kg	0.5	45	6.02479053063	50	78
			Zinc, Zn	mg/kg	0.5	100	57.8404794408	50	89
SE148342.017	LB094071.004		Arsenic, As	mg/kg	3	53	8	50	91
			Cadmium, Cd	mg/kg	0.3	43	<0.3	50	86
			Chromium, Cr	mg/kg	0.3	59	8.9	50	100
			Copper, Cu	mg/kg	0.5	56	6.9	50	99
			Lead, Pb	mg/kg	1	53	9	50	88
			Nickel, Ni	mg/kg	0.5	53	6.6	50	93
			Zinc, Zn	mg/kg	0.5	80	27	50	107
SE148342.036	LB094072.004		Arsenic, As	mg/kg	3	49	6	50	85
			Cadmium, Cd	mg/kg	0.3	41	0.4	50	81
			Chromium, Cr	mg/kg	0.3	100	86	50	34 ④
			Copper, Cu	mg/kg	0.5	80	39	50	83
			Lead, Pb	mg/kg	1	56	21	50	69 ④
			Nickel, Ni	mg/kg	0.5	90	72	50	37 ④
			Zinc, Zn	mg/kg	0.5	110	96	50	34 ④

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093918.026		TRH C10-C14	mg/kg	20	44	<20	40	103
			TRH C15-C28	mg/kg	45	63	<45	40	98
			TRH C29-C36	mg/kg	45	73	<45	40	110
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	180	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093918.026	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	43	<25	40	100
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	43	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	92	<90	40	103
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
SE148342.022	LB093920.027		TRH C10-C14	mg/kg	20	46	<20	40	115
			TRH C15-C28	mg/kg	45	<45	<45	40	110
			TRH C29-C36	mg/kg	45	<45	<45	40	83
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	120	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	45	<25	40	113
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	45	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	100
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
SE148342.041	LB093921.023		TRH C10-C14	mg/kg	20	50	<20	40	113
			TRH C15-C28	mg/kg	45	49	<45	40	98
			TRH C29-C36	mg/kg	45	<45	<45	40	88
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	140	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	51	<25	40	113
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	51	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	88
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093917.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.5	<0.1	2.9	87
			Toluene	mg/kg	0.1	3.0	<0.1	2.9	102
			Ethylbenzene	mg/kg	0.1	2.3	<0.1	2.9	78
			m/p-xylene	mg/kg	0.2	4.3	<0.2	5.8	74
			o-xylene	mg/kg	0.1	2.2	<0.1	2.9	74
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	3.5	-	91
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	3.9	-	100
			d8-toluene (Surrogate)	mg/kg	-	5.5	4.2	-	109
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.3	-	81
		Totals	Total Xylenes*	mg/kg	0.3	6.4	<0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-
SE148342.021	LB093919.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	1.8	<0.1	2.9	62
			Toluene	mg/kg	0.1	1.9	<0.1	2.9	66
			Ethylbenzene	mg/kg	0.1	2.0	<0.1	2.9	68
			m/p-xylene	mg/kg	0.2	4.0	<0.2	5.8	68
			o-xylene	mg/kg	0.1	2.1	<0.1	2.9	71
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	-	84
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	4.3	-	96
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.1	-	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.1	-	88
		Totals	Total Xylenes*	mg/kg	0.3	6.0	<0.3	-	-
			Total BTEX	mg/kg	0.6	12	<0.6	-	-
SE148342.041	LB094016.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.1	<0.1	2.9	73
			Toluene	mg/kg	0.1	2.3	<0.1	2.9	79
			Ethylbenzene	mg/kg	0.1	2.0	<0.1	2.9	69
			m/p-xylene	mg/kg	0.2	4.0	<0.2	5.8	68
			o-xylene	mg/kg	0.1	2.0	<0.1	2.9	69
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.8	-	70
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.8	-	88
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.3	-	78
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	3.7	-	72

MATRIX SPIKES

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.041	LB094016.004	Totals	Total Xylenes*	mg/kg	0.3	6.0	<0.3	-	-
			Total BTEX	mg/kg	0.6	12	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148342.001	LB093917.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	94
			TRH C6-C9	mg/kg	20	<20	<20	23.2	74
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	3.5	-	91
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	3.9	-	100
			d8-toluene (Surrogate)	mg/kg	-	5.5	4.2	-	109
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.3	-	81
		VPH F Bands	Benzene (F0)	mg/kg	0.1	2.5	<0.1	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	124
SE148342.021	LB093919.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	84
			TRH C6-C9	mg/kg	20	<20	<20	23.2	67
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	-	84
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	4.3	-	96
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.1	-	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.1	-	88
		VPH F Bands	Benzene (F0)	mg/kg	0.1	1.8	<0.1	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	125
SE148342.041	LB094016.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	83
			TRH C6-C9	mg/kg	20	<20	<20	23.2	68
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.8	-	70
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.8	-	88
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.3	-	78
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	3.7	-	72
		VPH F Bands	Benzene (F0)	mg/kg	0.1	2.1	<0.1	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	110

MATRIX SPIKE DUPLICATES

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	NATA accreditation does not cover tthe performance of this service .
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE148537 R0

CLIENT DETAILS

Contact	Emmanuel Woelders
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Project	**E22851 - 149-163 Milton St, Ashbury NSW**
Order Number	**E22851**
Samples	9

LABORATORY DETAILS

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SGS Reference	**SE148537 R0**
Date Received	02 Feb 2016
Date Reported	09 Feb 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	pH in water	1 item
Analysis Date	pH in water	1 item

SAMPLE SUMMARY

Sample counts by matrix	9 Waters	Type of documentation received	COC
Date documentation received	2/2/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	9.9°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Anions by Ion Chromatography in Water

Method: ME-AU-ENVAN245

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4M	SE148537.003	LB094365	29 Jan 2016	02 Feb 2016	26 Feb 2016	04 Feb 2016	26 Feb 2016	05 Feb 2016

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4M	SE148537.003	LB094323	29 Jan 2016	02 Feb 2016	26 Feb 2016	03 Feb 2016	26 Feb 2016	03 Feb 2016

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE148537.001	LB094497	28 Jan 2016	02 Feb 2016	25 Feb 2016	08 Feb 2016	25 Feb 2016	08 Feb 2016
BH3M	SE148537.002	LB094497	29 Jan 2016	02 Feb 2016	26 Feb 2016	08 Feb 2016	26 Feb 2016	08 Feb 2016
BH4M	SE148537.003	LB094497	29 Jan 2016	02 Feb 2016	26 Feb 2016	08 Feb 2016	26 Feb 2016	08 Feb 2016
BH7M	SE148537.004	LB094497	29 Jan 2016	02 Feb 2016	26 Feb 2016	08 Feb 2016	26 Feb 2016	08 Feb 2016
BH8M	SE148537.005	LB094497	29 Jan 2016	02 Feb 2016	26 Feb 2016	08 Feb 2016	26 Feb 2016	08 Feb 2016
GWQD1	SE148537.006	LB094497	29 Jan 2016	02 Feb 2016	26 Feb 2016	08 Feb 2016	26 Feb 2016	08 Feb 2016
GWQR1	SE148537.009	LB094497	29 Jan 2016	02 Feb 2016	26 Feb 2016	08 Feb 2016	26 Feb 2016	08 Feb 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE148537.001	LB094277	28 Jan 2016	02 Feb 2016	04 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH3M	SE148537.002	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH4M	SE148537.003	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH7M	SE148537.004	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH8M	SE148537.005	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
GWQD1	SE148537.006	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	08 Feb 2016
GWQR1	SE148537.009	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	08 Feb 2016

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4M	SE148537.003	LB094323	29 Jan 2016	02 Feb 2016	30 Jan 2016	03 Feb 2016†	30 Jan 2016	03 Feb 2016†

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE148537.001	LB094444	28 Jan 2016	02 Feb 2016	26 Jul 2016	05 Feb 2016	26 Jul 2016	09 Feb 2016
BH3M	SE148537.002	LB094444	29 Jan 2016	02 Feb 2016	27 Jul 2016	05 Feb 2016	27 Jul 2016	09 Feb 2016
BH4M	SE148537.003	LB094444	29 Jan 2016	02 Feb 2016	27 Jul 2016	05 Feb 2016	27 Jul 2016	09 Feb 2016
BH7M	SE148537.004	LB094444	29 Jan 2016	02 Feb 2016	27 Jul 2016	05 Feb 2016	27 Jul 2016	09 Feb 2016
BH8M	SE148537.005	LB094444	29 Jan 2016	02 Feb 2016	27 Jul 2016	05 Feb 2016	27 Jul 2016	09 Feb 2016
GWQD1	SE148537.006	LB094444	29 Jan 2016	02 Feb 2016	27 Jul 2016	05 Feb 2016	27 Jul 2016	09 Feb 2016
GWQR1	SE148537.009	LB094444	29 Jan 2016	02 Feb 2016	27 Jul 2016	05 Feb 2016	27 Jul 2016	09 Feb 2016

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE148537.001	LB094277	28 Jan 2016	02 Feb 2016	04 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH3M	SE148537.002	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH4M	SE148537.003	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH7M	SE148537.004	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
BH8M	SE148537.005	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
GWQD1	SE148537.006	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016
GWQR1	SE148537.009	LB094277	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	05 Feb 2016

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE148537.001	LB094267	28 Jan 2016	02 Feb 2016	04 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH3M	SE148537.002	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH4M	SE148537.003	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH7M	SE148537.004	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH8M	SE148537.005	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
GWQD1	SE148537.006	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
GWQTB1	SE148537.007	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
GWQTS1	SE148537.008	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWQR1	SE148537.009	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE148537.001	LB094267	28 Jan 2016	02 Feb 2016	04 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH3M	SE148537.002	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH4M	SE148537.003	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH7M	SE148537.004	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
BH8M	SE148537.005	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
GWQD1	SE148537.006	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
GWQTB1	SE148537.007	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
GWQTS1	SE148537.008	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016
GWQR1	SE148537.009	LB094267	29 Jan 2016	02 Feb 2016	05 Feb 2016	03 Feb 2016	14 Mar 2016	09 Feb 2016

SURROGATES

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M	SE148537.001	%	40 - 130%	62
	BH3M	SE148537.002	%	40 - 130%	58
	BH4M	SE148537.003	%	40 - 130%	56
	BH7M	SE148537.004	%	40 - 130%	58
	BH8M	SE148537.005	%	40 - 130%	60
d14-p-terphenyl (Surrogate)	BH1M	SE148537.001	%	40 - 130%	94
	BH3M	SE148537.002	%	40 - 130%	72
	BH4M	SE148537.003	%	40 - 130%	84
	BH7M	SE148537.004	%	40 - 130%	82
	BH8M	SE148537.005	%	40 - 130%	86
d5-nitrobenzene (Surrogate)	BH1M	SE148537.001	%	40 - 130%	60
	BH3M	SE148537.002	%	40 - 130%	56
	BH4M	SE148537.003	%	40 - 130%	62
	BH7M	SE148537.004	%	40 - 130%	62
	BH8M	SE148537.005	%	40 - 130%	64

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE148537.001	%	40 - 130%	102
	BH3M	SE148537.002	%	40 - 130%	98
	BH4M	SE148537.003	%	40 - 130%	99
	BH7M	SE148537.004	%	40 - 130%	96
	BH8M	SE148537.005	%	40 - 130%	102
	GWQD1	SE148537.006	%	40 - 130%	90
	GWQTB1	SE148537.007	%	40 - 130%	90
	GWQTS1	SE148537.008	%	40 - 130%	95
	GWQR1	SE148537.009	%	40 - 130%	90
d4-1,2-dichloroethane (Surrogate)	BH1M	SE148537.001	%	40 - 130%	94
	BH3M	SE148537.002	%	40 - 130%	119
	BH4M	SE148537.003	%	40 - 130%	116
	BH7M	SE148537.004	%	40 - 130%	124
	BH8M	SE148537.005	%	40 - 130%	93
	GWQD1	SE148537.006	%	40 - 130%	93
	GWQTB1	SE148537.007	%	40 - 130%	88
	GWQTS1	SE148537.008	%	40 - 130%	84
	GWQR1	SE148537.009	%	40 - 130%	93
d8-toluene (Surrogate)	BH1M	SE148537.001	%	40 - 130%	104
	BH3M	SE148537.002	%	40 - 130%	82
	BH4M	SE148537.003	%	40 - 130%	91
	BH7M	SE148537.004	%	40 - 130%	78
	BH8M	SE148537.005	%	40 - 130%	101
	GWQD1	SE148537.006	%	40 - 130%	75
	GWQTB1	SE148537.007	%	40 - 130%	80
	GWQTS1	SE148537.008	%	40 - 130%	84
	GWQR1	SE148537.009	%	40 - 130%	81
Dibromofluoromethane (Surrogate)	BH1M	SE148537.001	%	40 - 130%	100
	BH3M	SE148537.002	%	40 - 130%	123
	BH4M	SE148537.003	%	40 - 130%	123
	BH7M	SE148537.004	%	40 - 130%	105
	BH8M	SE148537.005	%	40 - 130%	99
	GWQD1	SE148537.006	%	40 - 130%	96
	GWQTB1	SE148537.007	%	40 - 130%	92
	GWQTS1	SE148537.008	%	40 - 130%	87
	GWQR1	SE148537.009	%	40 - 130%	95

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE148537.001	%	40 - 130%	88
	BH3M	SE148537.002	%	40 - 130%	108
	BH4M	SE148537.003	%	40 - 130%	104
	BH7M	SE148537.004	%	40 - 130%	125
	BH8M	SE148537.005	%	40 - 130%	88

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GWQD1	SE148537.006	%	40 - 130%	90
	GWQR1	SE148537.009	%	40 - 130%	90
d4-1,2-dichloroethane (Surrogate)	BH1M	SE148537.001	%	60 - 130%	91
	BH3M	SE148537.002	%	60 - 130%	116
	BH4M	SE148537.003	%	60 - 130%	113
	BH7M	SE148537.004	%	60 - 130%	121
	BH8M	SE148537.005	%	60 - 130%	92
	GWQD1	SE148537.006	%	60 - 130%	93
	GWQR1	SE148537.009	%	60 - 130%	93
d8-toluene (Surrogate)	BH1M	SE148537.001	%	40 - 130%	75
	BH3M	SE148537.002	%	40 - 130%	81
	BH4M	SE148537.003	%	40 - 130%	74
	BH7M	SE148537.004	%	40 - 130%	73
	BH8M	SE148537.005	%	40 - 130%	77
	GWQD1	SE148537.006	%	40 - 130%	75
	GWQR1	SE148537.009	%	40 - 130%	81
Dibromofluoromethane (Surrogate)	BH1M	SE148537.001	%	40 - 130%	95
	BH3M	SE148537.002	%	40 - 130%	116
	BH4M	SE148537.003	%	40 - 130%	117
	BH7M	SE148537.004	%	40 - 130%	124
	BH8M	SE148537.005	%	40 - 130%	94
	GWQD1	SE148537.006	%	40 - 130%	96
	GWQR1	SE148537.009	%	40 - 130%	95

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Anions by Ion Chromatography in Water

Method: ME-AU-ENVAN245

Sample Number	Parameter	Units	LOR	Result
LB094365.001	Chloride	mg/L	1	<1.0
	Sulphate, SO4	mg/L	1	<1.0

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB094323.001	Conductivity @ 25 C	µS/cm	2	<2

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB094497.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB094277.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(a&h)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	106
		2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	110

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB094444.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB094277.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB094267.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB094267.001	Halogenated Aliphatics	Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1
		Iodomethane	µg/L	5	<5
		1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<2
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	87

METHOD BLANKS

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB094267.001	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	87
		d8-toluene (Surrogate)	%	-	99
		Bromofluorobenzene (Surrogate)	%	-	101
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB094267.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	83
		d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	79
		Bromofluorobenzene (Surrogate)	%	-	91

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148568.002	LB094323.012	Conductivity @ 25 C	µS/cm	2	5250	5260	15	0

pH in water

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148568.002	LB094323.012	pH**	pH Units	-	7.467	7.464	16	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148537.009	LB094444.014	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148537.005	LB094267.017	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5	0	200	0
			1,2-dichloropropane	µg/L	0.5	<0.5	0	200	0
			cis-1,3-dichloropropene	µg/L	0.5	<0.5	0	200	0
			trans-1,3-dichloropropene	µg/L	0.5	<0.5	0	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	0	200	0
		Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	0	200	0
			Chloromethane	µg/L	5	<5	0	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	0	200	0
			Bromomethane	µg/L	10	<10	0	200	0
			Chloroethane	µg/L	5	<5	0	200	0
			Trichlorofluoromethane	µg/L	1	<1	0	200	0
			Iodomethane	µg/L	5	<5	0	200	0
			1,1-dichloroethene	µg/L	0.5	<0.5	0	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	<5	0	200	0
			Allyl chloride	µg/L	2	<2	0	200	0
			trans-1,2-dichloroethene	µg/L	0.5	<0.5	0	200	0
			1,1-dichloroethane	µg/L	0.5	<0.5	0	200	0
			cis-1,2-dichloroethene	µg/L	0.5	<0.5	0	200	0
			Bromochloromethane	µg/L	0.5	<0.5	0	200	0
			1,2-dichloroethane	µg/L	0.5	<0.5	0	200	0
			1,1,1-trichloroethane	µg/L	0.5	<0.5	0	200	0
			1,1-dichloropropene	µg/L	0.5	<0.5	0	200	0
			Carbon tetrachloride	µg/L	0.5	<0.5	0	200	0
			Dibromomethane	µg/L	0.5	<0.5	0	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	0	200	0
			1,1,2-trichloroethane	µg/L	0.5	<0.5	0	200	0
			1,3-dichloropropane	µg/L	0.5	<0.5	0	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	0	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	0	200	0
			cis-1,4-dichloro-2-butene	µg/L	1	<1	0	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	0	200	0
			1,2,3-trichloropropane	µg/L	0.5	<0.5	0	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	<1	0	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	0	200	0
			Hexachlorobutadiene	µg/L	0.5	<0.5	0	200	0
		Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5	0	200	0
			Bromobenzene	µg/L	0.5	<0.5	0	200	0
			2-chlorotoluene	µg/L	0.5	<0.5	0	200	0
			4-chlorotoluene	µg/L	0.5	<0.5	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued) Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148537.005	LB094267.017	Halogenated Aromatics	1,3-dichlorobenzene	µg/L	0.5	<0.5	0	200	0
			1,4-dichlorobenzene	µg/L	0.3	<0.3	0	200	0
			1,2-dichlorobenzene	µg/L	0.5	<0.5	0	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	<0.5	0	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	<0.5	0	200	0
		Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	0	200	0
			Toluene	µg/L	0.5	<0.5	0	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0	200	0
			m/p-xylene	µg/L	1	<1	0	200	0
			o-xylene	µg/L	0.5	<0.5	0	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	<0.5	0	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	0	200	0
			n-propylbenzene	µg/L	0.5	<0.5	0	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	<0.5	0	200	0
			tert-butylbenzene	µg/L	0.5	<0.5	0	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	<0.5	0	200	0
			sec-butylbenzene	µg/L	0.5	<0.5	0	200	0
			p-isopropyltoluene	µg/L	0.5	<0.5	0	200	0
			n-butylbenzene	µg/L	0.5	<0.5	0	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	<0.5	0	200	0
		Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10	0	200	0
			MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	0	200	0
			Vinyl acetate	µg/L	10	<10	0	200	0
			MEK (2-butanone)	µg/L	10	<10	0	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	<5	0	200	0
			2-hexanone (MBK)	µg/L	5	<5	0	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0	200	0
		Sulphonated	Carbon disulfide	µg/L	2	<2	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.0	5.8	30	16
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.7	5.46	30	16
			d8-toluene (Surrogate)	µg/L	-	5.1	4.39	30	14
			Bromofluorobenzene (Surrogate)	µg/L	-	5.1	5.27	30	3
		Trihalomethanes	Chloroform (THM)	µg/L	0.5	1.3	1.53	65	16
			Bromodichloromethane (THM)	µg/L	0.5	<0.5	0	200	0
			Dibromochloromethane (THM)	µg/L	0.5	<0.5	0	200	0
			Bromoform (THM)	µg/L	0.5	<0.5	0	200	0

Volatile Petroleum Hydrocarbons in Water Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE148537.005	LB094267.017		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.7	5.5	30	16
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.6	5.34	30	15
			d8-toluene (Surrogate)	µg/L	-	3.9	3.71	30	4
			Bromofluorobenzene (Surrogate)	µg/L	-	4.4	4.96	30	12
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	0	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Anions by Ion Chromatography in Water

Method: ME-AU-ENVAN245

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094365.002		Chloride	mg/L	1	19	20	80 - 120	93
		Sulphate, SO4	mg/L	1	19	20	80 - 120	96

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094323.002		Conductivity @ 25 C	µS/cm	2	310	303	90 - 110	104

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094277.002		Naphthalene	µg/L	0.1	27	40	60 - 140	67
		Acenaphthylene	µg/L	0.1	36	40	60 - 140	90
		Acenaphthene	µg/L	0.1	26	40	60 - 140	64
		Phenanthrene	µg/L	0.1	30	40	60 - 140	75
		Anthracene	µg/L	0.1	29	40	60 - 140	73
		Fluoranthene	µg/L	0.1	30	40	60 - 140	74
		Pyrene	µg/L	0.1	30	40	60 - 140	74
		Benzo(a)pyrene	µg/L	0.1	32	40	60 - 140	81
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.4	0.5	40 - 130	78
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	78
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	92

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094323.003		pH**	pH Units	-	7.4	7.415	98 - 102	100

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094444.002		Arsenic, As	µg/L	1	18	20	80 - 120	89
		Cadmium, Cd	µg/L	0.1	17	20	80 - 120	87
		Chromium, Cr	µg/L	1	17	20	80 - 120	85
		Copper, Cu	µg/L	1	18	20	80 - 120	89
		Lead, Pb	µg/L	1	18	20	80 - 120	92
		Nickel, Ni	µg/L	1	18	20	80 - 120	92
		Zinc, Zn	µg/L	5	19	20	80 - 120	93

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094277.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	103
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	118
		TRH C29-C36	µg/L	200	1600	1200	60 - 140	133
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1300	1200	60 - 140	108
		TRH >C16-C34 (F3)	µg/L	500	1600	1200	60 - 140	130
		TRH >C34-C40 (F4)	µg/L	500	780	600	60 - 140	130

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094267.002	Halogenated Aliphatics	1,1-dichloroethene	µg/L	0.5	51	45.45	60 - 140	111
		1,2-dichloroethane	µg/L	0.5	50	45.45	60 - 140	110
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	50	45.45	60 - 140	109
	Halogenated Monocyclic Aromatic	Chlorobenzene	µg/L	0.5	50	45.45	60 - 140	109
		Benzene	µg/L	0.5	50	45.45	60 - 140	110
		Toluene	µg/L	0.5	50	45.45	60 - 140	109
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	109
		m/p-xylene	µg/L	1	99	90.9	60 - 140	109
		o-xylene	µg/L	0.5	50	45.45	60 - 140	109
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.2	5	60 - 140	104
		d8-toluene (Surrogate)	µg/L	-	4.6	5	60 - 140	91
		Bromofluorobenzene (Surrogate)	µg/L	-	4.7	5	60 - 140	94

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued) Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094267.002	Trihalomethan	Chloroform (THM)	µg/L	0.5	50	45.45	60 - 140	110

Volatile Petroleum Hydrocarbons in Water Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB094267.002		TRH C6-C10	µg/L	50	940	946.63	60 - 140	99
		TRH C6-C9	µg/L	40	740	818.71	60 - 140	91
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		d8-toluene (Surrogate)	µg/L	-	5.1	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	µg/L	-	5.2	5	60 - 140	103
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	610	639.67	60 - 140	95

MATRIX SPIKES

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148537.001	LB094497.004	Mercury	mg/L	0.0001	0.0078	<0.0001	0.008	98

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE148512.001	LB094444.004	Copper, Cu	µg/L	1	19	0.003	20	83
		Zinc, Zn	µg/L	5	23	0.005	20	92

MATRIX SPIKE DUPLICATES

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

FOOTNOTES

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	NATA accreditation does not cover tthe performance of this service .
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

QA QC PLAN

Approved: T. Pilbeam

SGS Environmental Services is accredited by NATA for Chemical Testing (Reg.No.2562) and Quality System compliance to ISO/IEC 17025. The QC parameters contained within are designed to meet NEPM 1999 requirements.

Quality Control samples included in any analytical run are listed below.

Reagent/Analysis Blank (BLK) **Method Blank (MB)**	Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. A reagent blank is prepared and analysed with every batch of samples plus with each new batch of solvent prior to use.
Sample Matrix Spike (MS) & Matrix Spike Duplicate (MSD)	Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water may be used. A duplicate spiked sample is analysed at least every 20 samples.
Surrogate Spike (SS)	At least one but up to three surrogate compounds are added to all samples requiring analysis for organics prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples. Where possible they are surrogate compounds recommended by the USEPA.
Control Matrix Spike (CMS)	To ensure spike recoveries can be determined for every batch of samples a control matrix is spiked with identical concentrations of target analyte(s) and then analysed. These results allow recoveries to be determined in the event that the matrix spikes are unusable (eg. matrix spikes performed on heavily contaminated samples). These are analysed at least every 20 samples.
Internal Standard (IS)	Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments. Where possible they are standard compounds recommended by the USEPA.
Lab Duplicates (D)	A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Lab Control Standards/Samples (LCS)	Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity. Thereafter they are analysed at least every one in 20 samples plus at the end of each analytical run. This data is not reported.
Continuous Calibration Verification (CCV) or **Calibration Check Standard & Blank**	A calibration check standard or CCV and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift. Calibration Standards are checked old versus new with a criteria of ±10%

Quality Assurance Programs are listed below:

Statistical analysis of Quality Control data (SQC)	Quality control data is plotted on control charts using the APHA procedure with warning and control limits at 2 and 3 standard deviations respectively. See also QMS Procedure “Statistical Quality Control”.
Certified Reference Materials (CRM/SRM)	Certified Reference Materials and Standards are regularly analysed. These materials/standards have certified reference values for various parameters.
Proficiency Testing	Regular proficiency test samples are analysed by our laboratories. SGS Environmental participates in a number of programs. Results and proficiency status are compiled and sent to participating laboratory post data interpretation. Failure to comply with acceptable values result in further investigations.
Inter-laboratory & Intra-laboratory Testing	SGS Environmental Services has schedules in the Quality Systems to participate in Inter/Intra laboratory testing conducted internally and by other parties.
Data Acceptance Criteria Unless otherwise specified in the method or method manual the following general criteria apply to all inorganic tests. All recoveries are to be reported to 3 significant figures.	Failure to meet the internal acceptance criteria will result in sample batch repeats dependent upon investigation outcomes. For data to be accepted: <u>Inorganics (water samples)</u> • For all inorganic analytes the Reagent & Method Blanks must be less than the LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±15%. • Control Standards must be 80-120% of the accepted value. • The Calibration Check Blanks must be less than the LOR. • Lab Duplicates RPD to be <15%*. Note: If client <u>field</u> duplicates do not meet this criteria it may indicate heterogeneity and shall be noted on the data reports for QC samples. • Sample (and if applicable Control) Matrix Spike♫ Duplicate recovery RPD to be <30%. • Where CRMs are used, results to be within ±2 standard deviations of the expected value. <u>Inorganics (soil samples)</u> • For all inorganic analytes the Reagent & Method Blanks must be less than the LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±15%. • Control Standards must be 80-120% of the accepted value. • The Calibration Check Blanks must be less than the LOR. • Lab duplicate RPD to be <30%* for sample results greater than 10 times LOR. • Sample Matrix Spike Duplicate (MS♫/MSD) recovery RPD to be <30%. In the event that the matrix spike has been applied to samples whose matrix or contamination is problematic to the method then these acceptance criteria apply to the Control Matrix Spike (CMS/D). • Where CRMs are used, results to be within ± 2 standard deviations of the expected value.

Data Acceptance Criteria

Unless otherwise specified in the method or method manual the following general criteria apply to all organic tests.

All recoveries are to be reported to 3 significant figures.

Organics

- Volatile & extractable Reagent & Method Blanks must contain levels less than or equal to LOR.
- The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within $^{\pm}$25%. Some analytes may have specific criteria.
- Control Standards (LCS/CMS) and Certified Reference Materials (CRM) recoveries are to be within established control limits or as a default 60-140% unless compound specific limits apply.
- Retention times are to vary by no more than 0.2 min.
- **At least two of three** routine level soil sample Surrogate Spike (SS) recoveries are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as acceptance criterion. Any recoveries outside these limits will have comment.
- Water sample Surrogates Spike (SS) recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion. Any recoveries outside these limits will have comment.
- Lab Duplicates (D) must have a RPD <30%*.
- Sample Matrix Spike Duplicate (MS[♬]/MSD) recovery RPD to be <30%. In the event that the matrix spike has been applied to samples whose matrix or contamination is problematic to the method then these acceptance criteria apply to the Control Matrix Spike (CMS/D).

*Only if results are at least 10 times the LOR otherwise no acceptance criteria for RPD's apply. Application of more stringent criteria shall be applied for clean water sample from water boards and any other nominated client contracts. Nominal 10xLOR criteria are dropped to 5xLOR where specified.

[♬] Matrix do not readily equate to definitive recovery due to inherent matrix interferences and thus do not have recovery compliance values set. As a guide inorganic recoveries should be between 70-130% and for organics 60-130%

Batch Structure Summary

An analytical batch is nominally considered as 20 samples or smaller. As a standard template the following should be **used as a guide** according to the above Quality Control Types:

1	MB	16	UNK_DUP
2	STD1	17	MS
3	STD2	18	MS_DUP
4	STD3	19	UNK 11
5	LCS	20	UNK 12
6	BLK	21	UNK 13
7	UNK 1	22	UNK 14
8	UNK 2	23	UNK 15
9	UNK 3	24	UNK 16
10	UNK 4	25	UNK 17
11	UNK 5	26	UNK 18
12	UNK 6	27	UNK 19
13	UNK 7	28	UNK 20 (SS if applicable)
14	UNK 8	29	UNK_DUP
15	UNK 9	30	CCV
16	UNK 10 (SS if applicable)	31	CRM / SRM / CMS / LCS

Table QC1 - Containers, Preservation Requirements and Holding Times - Soil

Parameter	Container	Preservation	Maximum Holding Time
Acid digestible metals and metalloids - Total and TCLP (As,Cd.,Cu,Cr,Ni,Pb,Zn)	Glass with Teflon Lid	Nil	6 months
Mercury	Glass with Teflon Lid	Nil	28 days
TPH / BTEX / VOC / SVOC / CHC	Glass with Teflon Lid	4^{o}C, zero headspace	14 days
PAHs (total and TCLP)	Glass with Teflon Lid	4^{o}C [1]	14 days
Phenols	Glass with Teflon Lid	4^{o}C [1]	14 days
OCPs, OPPs and total PCBs	Glass with Teflon Lid	4^{o}C [1]	14 days
Asbestos	Sealed Plastic Bag	Nil	N/A

Table QC2 - Containers, Preservation Requirements and Holding Times - Water

Parameter	Container Volume (mL)	Preservation	Maximum Holding Time
Heavy Metals	125mL Plastic	Field filtration 0.45µm HNO_3 / 4^{o}C	6 months
Cyanide	125mL Amber Glass	pH > 12 NaOH / 4^{o}C	6 months
TPH (C6-C9) / BTEX / VOCs SVOCs / CHCs	4 x 43mL Glass	HCl / 4^{o}C [1]	14 days
TPH (C10-C36) / PAH / Phenolics OCP / OPP / TDS / pH	3 x 1L Amber Glass	None / 4^{o}C [1]	28 days

Notes: [1] = Extraction within 14 days, Analysis within 40 days.

Table QC3 - Analytical Parameters, PQLs and Methods - Soil

Parameter	Unit	PQL	Method Reference
Metals in Soil			
Arsenic - As[1]	mg / kg	1	USEPA 200.7
Cadmium - Cd[1]	mg / kg	0.5	USEPA 200.7
Chromium - Cr[1]	mg / kg	1	USEPA 200.7
Copper - Cu[1]	mg / kg	1	USEPA 200.7
Lead - Pb[1]	mg / kg	1	USEPA 200.7
Mercury - Hg[2]	mg / kg	0.1	USEPA 7471A
Nickel - Ni[1]	mg / kg	1	USEPA 200.7
Zinc - Zn[1]	mg / kg	1	USEPA 200.7
Total Petroleum Hydrocarbons (TPHs) in Soil			
C_6-C_9 fraction	mg / kg	25	USEPA 8260
C_{10}-C_{14} fraction	mg / kg	50	USEPA 8000
C_{15}-C_{28} fraction	mg / kg	100	USEPA 8000
C_{29}-C_{36} fraction	mg / kg	100	USEPA 8000
BTEX in Soil			
Benzene	mg / kg	1	USEPA 8260
Toluene	mg / kg	1	USEPA 8260
Ethylbenzene	mg / kg	1	USEPA 8260
m & p Xylene	mg / kg	2	USEPA 8260
o- Xylene	mg / kg	1	USEPA 8260
Other Organic Contaminants in Soil			
PAHs	mg / kg	0.05-0.2	USEPA 8270
CHCs	mg / kg	1	USEPA 8260
VOCs	mg / kg	1	USEPA 8260
SVOCs	mg / kg	1	USEPA 8260
OCPs	mg / kg	0.1	USEPA 8140, 8080
OPPs	mg / kg	0.1	USEPA 8140, 8080
PCBs	mg / kg	0.1	USEPA 8080
Phenolics	mg / kg	5	APHA 5530
Asbestos			
Asbestos	mg / kg	Presence / Absence	AS4964-2004

Notes:

1. Acid Soluble Metals by ICP-AES

2. Total Recoverable Mercury

Table QC4 - Analytical Parameters, PQLs and Methods - Groundwater

Parameter	Unit	PQL	Method	Parameter	Unit	PQL	Method
Heavy Metals				***Chlorinated Hydrocarbons (CHCs)***			
Antimony - Sb	µg/L	1	USEPA 200.8	1,2-dichlorobenzene	µg/L	1	USEPA 8260B
Arsenic - As	µg/L	1	USEPA 200.8	1,3-dichlorobenzene	µg/L	1	USEPA 8260B
Beryllium - Be	µg/L	0.5	USEPA 200.8	1,4-dichlorobenzene	µg/L	1	USEPA 8260B
Cadmium - Cd	µg/L	0.1	USEPA 200.8	1,2,3-trichlorobenzene	µg/L	1	USEPA 8260B
Chromium - Cr	µg/L	1	USEPA 200.8	1,2,4-trichlorobenzene	µg/L	1	USEPA 8260B
Cobalt - Co	µg/L	1	USEPA 200.8	Hexachlorobutadeine	µg/L	1	USEPA 8260B
Copper - Cu	µg/L	1	USEPA 200.8	1,1,2-trichloroethane	µg/L	1	USEPA 8260B
Lead - Pb	µg/L	1	USEPA 200.8	Hexachloroethane	µg/L	10	USEPA 8270D
Mercury - Hg	µg/L	0.5	USEPA 7471A	Other CHCs	µg/L	1	USEPA 8260B
Molybdenum - Mo	µg/L	1	USEPA 200.8	***Volatile Organic Compounds (VOCs)***			
Nickel - Ni	µg/L	1	USEPA 200.8	Aniline	µg/L	10	USEPA 8260B
Selenium - Se	µg/L	1	USEPA 200.8	2,4-dichloroaniline	µg/L	10	USEPA 8260B
Silver - Ag	µg/L	1	USEPA 200.8	3,4-dichloroaniline	µg/L	10	USEPA 8260B
Tin (inorg.) - Sn	µg/L	1	USEPA 200.8	Nitrobenzene	µg/L	50	USEPA 8260B
Nickel - Ni	µg/L	1	USEPA 200.8	2,4-dinitrotoluene	µg/L	50	USEPA 8260B
Zinc - Zn	µg/L	1	USEPA 200.8	2,4,6-trinitrotoluene	µg/L	50	USEPA 8260B
Total Petroleum Hydrocarbons (TPHs)				***Phenolic Compounds***			
C_6-C_9 fraction	µg/L	10	USEPA 8220A / 8000	Phenol	µg/L	10	USEPA 8041
C_{10}-C_{14} fraction	µg/L	50	USEPA 8000	2-chlorophenol	µg/L	10	USEPA 8041
C_{15}-C_{28} fraction	µg/L	100	USEPA 8000	4-chlorophenol	µg/L	10	USEPA 8041
C_{29}-C_{36} fraction	µg/L	100	USEPA 8000	2, 4-dichlorophenol	µg/L	10	USEPA 8041
BTEX				2,4,6-trichlorophenol	µg/L	10	USEPA 8041
Benzene	µg/L	1	USEPA 8220A	2,3,4,6-tetrachlorophenol	µg/L	10	USEPA 8041
Toluene	µg/L	1	USEPA 8220A	Pentachlorophenol	µg/L	10	USEPA 8041
Ethylbenzene	µg/L	1	USEPA 8220A	2,4-dinitrophenol	µg/L	10	USEPA 8041
m- & p-Xylene	µg/L	2	USEPA 8220A	***Miscellaneous Parameters***			
o-Xylene	µg/L	1	USEPA 8220A	Total Cyanide	µg/L	5	APHA 4500C&E-CN
Polyciclic Aromatic Hydrocarbons (PAHs)				Fluoride	µg/L	10	APHA 4500 F-C
PAHs	µg/L	0.1	USEPA 8270	Salinity (TDS)	mg/L	1	APHA 2510
Benzo(a)pyrene	µg/L	0.01	USEPA 8270	pH	units	0.1	APHA 4500H+
OrganoChlorine Pesticides (OCPs)				***OrganoPhosphate Pesticides (OPPs)***			
Aldrin	µg/L	0.001	USEPA 8081	Azinphos Methyl	µg/L	0.01	USEPA 8141
Chlordane	µg/L	0.001	USEPA 8081	Chloropyrifos	µg/L	0.01	USEPA 8141
DDT	µg/L	0.001	USEPA 8081	Diazinon	µg/L	0.01	USEPA 8141
Dieldrin	µg/L	0.001	USEPA 8081	Dimethoate	µg/L	0.01	USEPA 8141
Endosulfan	µg/L	0.001	USEPA 8081	Fenitrothion	µg/L	0.01	USEPA 8141
Endrin	µg/L	0.001	USEPA 8081	Malathion	µg/L	0.01	USEPA 8141
Heptachlor	µg/L	0.001	USEPA 8081	Parathion	µg/L	0.01	USEPA 8141
Lindane	µg/L	0.001	USEPA 8081	Temephos	µg/L	0.01	USEPA 8141
Toxaphene	µg/L	0.001	USEPA 8081	***Polychlorinated Biphenyls (PCBs)***			
				Individual PCBs	µg/L	0.01	USEPA 8081

Table QC5 - QC Sample Data Acceptance Criteria

QC Sample Type	Method of Assessment	Acceptable Range
Field QC		
Blind Duplicates and Split Samples	The assessment of split duplicate is undertaken by calculating the Relative Percent Difference (RPD) of the duplicate concentration compared with the primary sample concentration. The RPD is defined as: $RPD = 100 \times \frac{\mid X_1 - X_2 \mid}{\text{mean (X1, X2)}}$ Where: X_1 and X_2 are the concentrations of the primary and duplicate samples.	The acceptable range depends upon the levels detected: - 0-150% RPD (when the average concentration is <5 times the LOR/PQL) - 0-75% RPD (when the average concentration is 5 to 10 times the LOR/PQL) - 0-50% RPD (when the average concentration is >10 times the LOR/PQL)
Rinsate & Trip Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL
Laboratory prepared Trip Spike	The Trip Spike is analysed after returning from the field and the % recovery of the known spike is calculated.	70 - 130%
Laboratory QC		
Laboratory Duplicates	Assessment of Lab Duplicate RPD as per Blind Duplicates and Split Samples.	Lab Duplicate RPD < 15% (Inorganics) Lab Duplicate RPD < 30% (Organics) for sample results > 10 LOR
Surrogates Matrix Spikes Laboratory Control Samples	Assessment is undertaken by determining the percent recovery of the known surrogate spike (SS) or addition to the sample. $\% \text{ Recovery} = 100 \times \frac{C - A}{B}$ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; and C = Calculated Concentration.	at least 2 SS recoveries to be within 70-130% subject to matrix effects (Organics) 80-120% (Inorganics / Metals) 60-140% (Organics) 10-140% (SVOC and Speciated Phenols) If the result is outside the above ranges, the result must be <3x Standard Deviation of the Historical Mean (calculated over the past 12 months).
Sample Matrix Spike Duplicates	Recovery RPD	<30% (Inorganics & Organics)
Calibration Check Standars	Continuous Calibration Verification (CCV)	CCV must be within ±15% (inorganics) CCV must be within ±25% (inorganics)
Reagent, Method & Calibration Check Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL

Note: PQL - Laboratory Practical Quantitation Limit (PQL) or the minimum detection limit for a particular analyte.
LOR = Limit of Reporting

1 OBJECTIVE

This procedure will be used by the laboratory to comply with NEPM requirements for QA/QC reporting (and is typical of other regulatory requirements).

This procedure is applicable to all Environmental samples eg from Environmental Consultants. Samples from non-Environmental Consultants such as Councils, mines or trade waste etc do not necessarily have to conform with these requirements, however, it will be the Envirolab Group's default policy that this procedure be used whenever possible.

2 DEFINITIONS

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.

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware, instrument etc, can be determined by processing solvents, acids and reagents in exactly the same manner as for samples. Other terms cited in literature, but not used here include: Reagent Blank, Control Blank, Method Blank.

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. Other terms cited in literature include Laboratory Fortified Matrix. It is suggested that the spiking concentration be near the middle of the working calibration range.

Surrogate Spike

Surrogates are known additions to each standard, sample, blank, matrix spike and LCS in a process batch, of compounds which are similar to the analyte of interest in terms of:
a) extraction
b) recovery through clean up procedures
c) response to chromatography or other determinations

but which:
d) are not expected to be found in real samples
e) will not interfere with quantification of any analyte of interest
f) may be separately and independently quantified

These are only applicable to organic testing.

Internal Standards

Internal standards are used to check the consistency of the analytical step (e.g. injections, retention times, potential instrument suppression/enhancement etc) and provide a reference against which results may be adjusted in case of variation. For many organic and metals analyses, internal standards are added after all extraction, cleanup and concentration steps, to each final extract solution/sample/standard.

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. Other terms cited in literature include: laboratory control standard, quality control check sample, laboratory fortified blank.

Process Batch

A group of samples which behave similarly with respect to the sampling or the testing procedures being employed and which are processed as a unit for QC purposes. It is important that all factors within a process batch be the same. If any factors change e.g. reagents, staff, standards then a new process batch is deemed to have begun. A process batch is considered to be $\leq$20 samples.

Percent Recovery

Percent recovery describes the capability of the method to recover a known amount of analyte added to the sample.

% Recovery = C-A / B x 100

where: A = natural concentration of analyte in the sample
B = concentration of analyte added to the sample
C = concentration of analyte determined in the spiked sample

RPD (Relative Percent Difference)

This calculation measures the precision between two figures. Commonly used to compare the precision of Duplicate results.

% RPD = ((Highest – Lowest)/Average) x 100

3 QC REQUIRED AND WHAT IS REPORTED

The following QC is required for all Environmental Samples, unless justified otherwise by a Manager/Supervisor.

Blank

At least one per process batch.
The Blanks must be labelled throughout the day e.g.: Blk_1, Blk_2 etc.
The Blank is analysed at a rate of one per $\leq$20 samples.

LCS

At least one per process batch.
The LCS's must be labelled throughout the day e.g.: LCS_1, LCS_2 etc.
The LCS is reported to all clients at a rate of one per $\leq$20 samples.

Duplicate

At least one per ten samples i.e. a Duplicate is carried $\leq$ 10 samples.
So, if there is one process batch of 100 samples there will be at least 10 Duplicates.
There are instances where there is insufficient sample for a duplicate analysis and hence the

frequency will not apply, however, every effort will be made to perform a duplicate in each process batch (water volumes supplied for VOC and SVOC are often insufficient).

The Duplicate is only reported to the client if it is performed on their sample.

Matrix Spike

One for each soil/water/air sample (where applicable) type e.g.: if a batch contains soils/waters/air samples then a matrix spike must be done on each sample type at a frequency of 5%, typically a matrix spike is carried out where ≥5 samples and then every 20.

The sample type is generally recorded on the Chain of Custody. If a client calls all samples 'soil' then we will treat all samples as 1 sample type (unless they are very obviously different).
If there is only one sample type e.g. soil, then a matrix spike is performed every 20 samples.

There is no requirement in NEPM for a Matrix Spike Duplicate.

The Matrix Spike is only reported to the client if it is performed on their sample.

Certified/Standard Reference Materials

Where available, CRMs/SRMs are analysed (particularly during validation/verification). Due to the high cost and lack of stability of many CRMs/SRMs, the frequency of analysis is relatively low. Typically SRMs are run for Metals only (e.g. AGAL series 6, 10, 12 for example) as they are cost effective and stable over a long period of time. Therefore once a week or once a month is not uncommon.

4 ACCEPTANCE CRITERIA

If QC fails, take corrective action promptly to determine and eliminate the source of the error. Do not report data until the cause of the problem is identified and either corrected or qualified by a supervisor.

Matrix Spikes

As a general rule, the recoveries of most analytes spiked into samples should fall within the range 60% - 140% and this range should be used as a guide in evaluating in house performance, exceptions exist within individual methods. (*see tables 1-3 below for global acceptance criteria*).

Matrix Spikes will regularly fail, often due to matrix interferences. If a Matrix Spike fails it should be investigated:

a) check calculations and transcriptions to ensure a mistake has not been made.

b) look at the background concentration of the sample. If sample background is high then recovery can be affected (sample heterogeneity). A useful rule of thumb is where background concentration of an analyte is >3* the spike level then the spike recovery is n/a, however, where the sample is very non-homogenous acceptable spike recovery may be difficult. As long as the LCS is acceptable (*see below*) then the Process Batch will be accepted.

c) If the LCS has also failed then the Process Batch is deemed to have failed and data should not be reported unless justified. The batch should be repeated after consultation with the supervisor, possibly replacing standards or reagents (see guidelines below).

If a matrix spike has failed yet the process batch has been accepted by the supervisor, the failed matrix spike should still be reported to the client (unless the spiked sample has very high background levels). This should be accompanied by an appropriate comment such as ‘percent recovery not available due to significant background levels of analyte in the sample’ or ‘the matrix spike recovery was outside recommended acceptance criteria, however, an acceptable recovery was achieved for the LCS. This indicates a sample matrix interference’.

Matrix spikes are not carried out for all tests. These exceptions are mainly the inorganic tests such as TSS, pH, EC etc. and OHS samples (tubes/badges/filters/swabs etc) where all the sample is extracted as opposed to a portion. In these cases an acceptable LCS is required.

Matrix spikes are also not reported for all analytes. For example in a SVOC run of >100 analytes it is acceptable to only spike a range of analytes e.g. some PAHs, some OCP, some OPP, some speciated Phenols etc.

Duplicates

Acceptable Duplicate data is judged by % RPD.

See tables 1-3 below for acceptance criteria, the acceptance criteria will increase as the analyte concentration approaches the PQL as measurement uncertainty will become a more significant factor.

If a water duplicate fails then repeat the analysis (if there is sufficient sample left). If the RPD% fails again it is likely to be due to a non-homogeneity or a matrix issue and an appropriate comment should be applied to the report such as ‘the duplicate is outside acceptable %RPD, re-analysis indicates possible sample heterogeneity’. All failed duplicate results should be reported, a triplicate should be reported to illustrate analyte variability where applicable. *Poor reproducibility for water samples is rare unless the sediment loading is significant*.

If a soil duplicate fails then it should be repeated (if there is sufficient sample left). If the RPD% fails again it is likely to be due to a matrix non-homogeneity issue and an appropriate comment should be applied to the report such as ‘the duplicate is outside acceptable %RPD, reanalysis indicates possible sample heterogeneity’. All failed duplicate results should be reported and a triplicate should be reported to illustrate analyte variability where applicable. Soil matrices are a common issue with poor analyte precision given samples are typically prepared field moist

If an air duplicate fails then it should be repeated (if there is sufficient sample left). Duplicates for air samples are only applicable for canister and air sample (tedlar) bag analyses, precision failures should be rare given the relative simplicity of the matrix, however variation will be higher near reporting limits (PQL).

Internal Standards

Acceptance criteria for internal standards are 70-130% for Metals and 50-150% for Organics, note exceptions may exist in individual methods – see tables 1 and 3 below.

If internal standards exceed this criteria they will need to be either re-vialed and re-run for organics or diluted and re-run for metals. If they continue to fail consult the supervisor.

Surrogates

Surrogate recoveries should generally be within the range of 60-140%, table 3 below.

High analyte concentrations may cause surrogates to fail – this needs to be annotated on the final report (e.g. for svTRH).

The surrogate recovery in BLKs and LCSs should be within Global Acceptance Criteria (GAC) or Analyte Specific Acceptance Criteria (ASAC) for labile surrogates (e.g. d5-phenol etc.). The GAC and ASAC are discussed in more detail below.

Certified/Standard Reference Materials

CRMs/SRM recoveries should generally be within the range of 70-130%. Some certified levels are below or within 10*PQL and therefore ±30% tolerance is not achievable on all instruments (e.g. some elements in AGAL12 will struggle with this criteria on ICP-OES but should be achieved on ICP-MS due to higher uncertainty based on PQL differences for the two instruments).

Global Acceptance Criteria (GAC) for Matrix Spikes, LCS and BLKS

The criteria specified below covers >90% of the analytes determined by the laboratory, however due to limitation of the methodology and/or the labile nature of some analytes there are analytes whose recovery is outside of this acceptance criteria (GAC). Therefore ***Analyte Specific Acceptance Criteria*** (ASAC) is applied for these analytes. The ASAC is determined from 6-12 months of LCS recovery data and is Defined as 3 x std dev from the mean LCS recovery %.

See GAC in the tables below.

Table 1 – Metals GAC

	ICV	**CCV**	**Internal Standards**	**LCS**	**PQL std**	**Calibration Blank**	**Matrix Spikes#**	**%RPD≥ 10*PQL@**	**5*PQL≥*sample %RPD*<10*PQL@**	**%RPD<5*PQL**
Dissolved Waters	±10%	±20%	70-130%	±20%	±50%	<1/2*PQL std	±30%	20	50	any
Impingers	±10%	±20%	70-130%	±20%	±50%	<1/2*PQL std	±30%	30	50	any
Total Waters	±10%	±20%	70-130%	±20%	±50%	<1/2*PQL std	±30%	30	50	any
Soils/Paint/Filters (if cut in pieces)	±10%	±20%	70-130%	±30%	±50%	<1/2*PQL std	±30%	40	50	any

n/a where background is ≥ 3* spike level
@ where an original and duplicate result are above and below a cut off (5* and 10*PQL), then the mean of the two defines the criteria used.

Table 2 – Inorganics GAC

	ICV (LCS in many cases)	CCV	PQL std	Calibration Blank	LCS	Matrix Spikes#	%RPD≥10*PQL@	5*PQL≥*sample* *%RPD*<10*PQL@	%RPD<5*PQL
Waters - Nutrients no preparation	±20%	±20%	±50%	<1/2*PQL std	±20%	±30%	20	50	any
Waters digested/distilled	±20%	±20%	±50%	<1/2*PQL std	±20%	±30%	30	50	any
Impingers	±20%	±20%	±50%	<1/2*PQL std	±20%	±30%	30	50	any
Soils/Filters (if cut in pieces)	±20%	±20%	±50%	<1/2*PQL std	±30%	±30%	30	50	any

n/a where background is ≥ 3* spike level
@ where an original and duplicate result are above and below a cut off (5* and 10*PQL) then the average defines the criteria used.

Table 3 - Organics (includes Air Toxics unless specified in the method) GAC (TD tubes are an exception for field duplicates)

	ICV (LCS in many cases)	CCV*	Internal Stds	PQL std	Calibration Blank	LCS$	Matrix Spikes#$ and Surrogates	%RPD≥5*PQL (although sampling may be the source of error)	%RPD<5*PQL
Waters/Air Toxic - VOC	±20%	±20%	50-150%	±50%	n/a	±20%	±40%	30	any
Waters extracted	±20%	±20%	50-150%	±50%	n/a	±40%	±40%	50	any
Soils	±20%	±20%	50-150%	±50%	n/a	±40%	±40%	50	any

n/a where background is ≥ 3* spike level
$ - there will be exception to this rule as some analytes are particularly labile and recovery as low as 10% has been documented in the literature (see ASAC).

@ where an original and duplicate result are above and below a cut off (5* and 10*PQL) then the average defines the criteria used.

See MICRO/ASBESTOS and ASS methods for acceptance criteria in those sections.

Decision Path for LCS

As a general rule, the recoveries of most LCS's should fall within the ranges specified in the tables above.

If an LCS fails it should be investigated:-

a) check calculations and transcriptions to ensure a basic mistake has not been made.

b) If all other QC has passed, repeat the LCS analysis. If the LCS fails again it should be re-made and re-analysed.

c) If the LCS fails after the second attempt there could be a problem with the LCS and hence the procedure – consult the supervisor.

If the failure is specific to the LCS then the Process Batch may be acceptable, if not, then repeat the process batch (if sufficient sample available). If insufficient sample is available then the data must be qualified with respect to the LCS result (for example a surrogate is half the expected value for all samples and LCS, this may be due to a setting on a pipette and is not reflective of poor extraction efficiency).

d) If the LCS fails the criteria in the GAC tables above, then compare to the ASAC for the individual analytes (i.e. 3 x stdev of LCS over 6-12 months). If within these criteria then the LCS is acceptable as long as above 10% recovery. Recovery below this limit implies the analytical method in not fit for purpose and hence the data must be qualified accordingly if reported.

There should be an LCS available for >99% of tests (exceptions include Asbestos for example).

Practical Quantitation Limit Checks (PQLs)

As can be seen from the tables above, a PQL standard run in the calibration or as a sample can be used to confirm the ability to determine the PQL on a sequence by sequence basis. This negates the need for MDL studies as the PQL is confirmed for each analytical sequence.

5 CHECKING THE CORRECTNESS OF ANALYSIS (see also form 346)

Anion Cation Balance

The anion and cation sums, when expressed as milliequivalents per litre, must approximately balance because all potable waters are electrically neutral.

As a minimum ion balance is determined from cations:-Na/Ca/Mg/K and anions:- Alk/Cl/SO_4.

The full calculation can be found in APHA and Form 213 - Mass Balance Calculation sheet can be used to determine the ion balance in Excel.

The acceptance criteria in APHA are very strict as they are based on potable water. The environmental waters we receive could rarely be termed potable so our % Difference has been determined to be ±15%, with supervisor discretion.

If the % is >15% for “cation total Meq vs anion total Meq” then there is a possibility of gross error and reruns/checks may be necessary. If the result is confirmed then an appropriate comment must accompany the report such as ‘the mass imbalance may be caused by other ions that have not been measured’. Extremes of pH can also cause an imbalance.

TDS v Ions

Measured TDS should be similar or greater than ion calculated TDS. This is because the calculation will normally not involve ions such as F, Si, NO_3 etc.

Note, as a guide in mg/L:-

0.6(alk) + Cl + SO_4 + Na + Ca + Mg + K + = Approx TDS.

Measured EC and Ion sums

Both the anion & cation sums (expressed as meq) should be 1/100 of the measured EC value. If either of the 2 sums does not meet this criteria, that sum is suspect.

The calculation is: 100 x anion (or cation sum) meq/L = (0.9-1.1 EC).

The full calculation can be found in APHA or use the spreadsheet i.e. Form 213 - Mass Balance Calculation sheet v1. Note another useful rule of thumb is that Chloride (mg/L) is $^1/_3$ of EC.

Measured TDS to EC Ratio

EC x (0.55-0.7) = TDS.

If it is outside this criteria one of the tests may be suspect. The exception is waters with high colloidal particulates that may contribute to a higher measured TDS result.

Metals – Total Recoverable v Dissolved.

In theory Total recoverable metals must be equal or higher than dissolved metals for the same water sample. If the difference is within the uncertainty of the individual tests then this should be noted on the worksheets. If the difference is outside the uncertainty of the individual tests then one of the results is suspect and should be re-analysed for confirmation/denial.

Metals – CrVI vs total dissolved Cr and FeII vs total dissolved Fe

The sample preservation for hexavalent Chromium, Ferrous Iron and the total dissolved Chromium and Iron are from different preservations. Hence different bottles are used during sampling which can lead to variations in results given:-

$Cr^{VI} \leq$ total dissolved Cr and $Fe^{II} \leq$ total dissolved Fe (taking into account some MU in analysis)

A common source of error is where samples for Cr^{VI} and Fe^{II} are not field filtered (into caustic and HCl preserved containers respectively), whereas the total dissolved metals are field filtered into HNO_3 preserved bottles. Therefore interaction with sediment can lead to higher Cr^{VI} and Fe^{II} numbers than would be given if filtered. Therefore, where this occurs a note should be recorded on the report and/or communicated to the customer/sampler.

Organics

Some simple checks to be aware of include:

C_6-C_{10} should generally be greater than BTEX.

>C_{10}-C_{36} should generally be greater than PAH.

Naphthalene in the VOC run should be similar to PAH (SVOC) run, however where the soil is non-homogenous then poor precision may exist. Additionally two different solvent mixes are used which can lead to variability in extraction efficiency.

Nutrients

TKN should be greater than or equal to Ammonia. If the difference is within the uncertainty of the individual tests then this should noted on the worksheets. If the difference is outside the uncertainty of the individual tests then one of the results is suspect and should be reanalysed for confirmation/denial. Use of different bottle for TKN and Ammonia can cause anomalies do to sampling variability.

See form 346 for more detail on checking correctness of data.

6 CONTROL CHARTS

Control Charts can be generated from LIMS as required. LCS data is used to construct these charts. LCS data is a good indication of the health of the method.

Matrix spike and duplicate data can vary significantly due to the nature of certain matrices so are not considered an ideal measure. If a MS result is grossly out due to a known interference then control data will be invalidated as the result is an outlier.

Control charts can used to monitor trends and should alert the analyst to potential problems. In theory all plotted data should lie within 2SD (Warning Limits =WL) of the mean or within the target recovery (e.g. GAC and ASAC recovery limits discussed above).

Results outside the CL or outside the target recovery (e.g. GAC and ASAC recovery limits discussed above) should not be accepted unless there is a valid, documented reason.

7 STANDARDS / CALIBRATIONS

Calibration standards are purchased either in commercial mixes that are traceable to NIST (wherever possible with CoAs) and/or as neat compounds/salts. Where possible, purity of neat compounds/salts is >>95% (as high as available but still cost effective). Standards used for calibration are prepared (working standards) as required and allocated a shelf life in accordance with the methods (in house and via international standards) and in consultation with approved suppliers and senior staff experience.

Calibration standards are verified by an independently sourced standard (where available) as described within individual methods. Standards that are used beyond the specified shelf-life (e.g. the default shelf-life for many commercial standards) must be verified by a standard that is within the specified shelf-life.

Note, inorganic salts with purity >>95% (>99% preferable) typically have a shelf life >10 years (the shelf life is typically not specified by the supplier). The standards from such salts are checked versus other sources of analyte regardless, for example a working standard from a $NaNO_3$ salt (as a Nitrate source) could be confirmed as acceptable for use by checking versus a working standard prepared from a KNO_3 salt (or a commercial mix of NO_3 where a CoA is supplied).

Calibration

In general calibrations are linear or linear through zero (i.e. through the blank). Exceptions to this rule occur where the chemistry is non-linear (e.g. some colourimetric chemistry) and quadratic fits can be used. Another example would be for labile Organic analytes where, for example, breakdown and/or adsorption effects become significant, therefore quadratic fits become necessary.

Calibration curves are constructed for each daily sequence for most instrumentation, the exceptions would be for some colourimetric chemistries where the reagents are very stable (e.g. NH_3/NO_3/PO_4/CrVI/TKN) and also for some GC-MS/ECD analyses where acceptable response is maintained for all analytes (can be confirmed with PQL standard analyses and S/N observation). To confirm the validity of the calibration curves an Independent Calibration Check (ICV) is run with a tolerance of ±20% of expected result (as described below).

For most methods an Independent Calibration Check (ICC or ICV where V = verification) is analysed straight after the calibration. This should be an independent check (i.e. made from another standard source) and acceptance is defined in the tables 1-3 in section 4 above. If it is outside this acceptance criteria, a new calibration may be necessary and/or calibration standards should be re-prepared and/or the Independent Calibration Check should be re-prepared.

Results may only be reported if within the calibration range (exceptions include ICPOES/IC/FID where linearity way beyond the top standard has been demonstrated in validation data). Results +10% beyond the top standard are acceptable in general where linear calibrations are used, *not* where quadratics are used.

The correlation coefficient (R^2) should be >0.995 for the vast majority of analytes (individual methods may have specific criteria). Where failures occurs, calibration points may be removed as a last resort (e.g. for a poor injection where internal standards are indicative) and should be a rarity as opposed to normal practice. In general 3-5 calibration standards are used to generate a response curve and/or a Continuing Calibration Verification (CCV) standard is run to ensure signal to noise is maintained.

Continuing Calibration

A continuing calibration is analysed approximately every 20 samples and at the end of the run. Acceptance should be ±20%. If it is outside this acceptance a new calibration will be necessary (the ability to maintain the detection limit (PQL) is a requirement i.e. run the PQL standard as described above with the required acceptance criteria (tables 1-3)).

New v's Old Standard Checks

New standards should always be compared to the old with an acceptance of ±10%.

Expired Standards

Standards that have expired may still be used, however, need to be verified against another in date standard, CRM or confirmed by another lab. The expiry date may then be extended a further 6 months (or less as deemed appropriate). For some analytes, such as metals, extending the expiry date for many years may be acceptable as there is known stability.

8 Intralaboratory Check Samples

Soils –

Internally prepared reference materials can be used to check the validity of analysis. Typically for soil, customer samples are collated and are then air dried, homogenised and sieved. The analyte concentrations are then determined by analysing 7-10 replicates to achieve a mean with an RSD%$\leq$30% (although concentration dependant). The results can then be internally (Melbourne ↔ Perth ↔ Sydney lab) verified and/or externally verified with another NATA accredited facility.

Once an acceptable mean and acceptance criteria has been established (professional judgement of the senior chemists can be utilised here), then the material can then be analysed periodically to check laboratory performance. Alternatively, if available, confirm against a CRM/SRM.

Other non-certified reference materials can be used to assess laboratory performance if suitably verified data has been generated (e.g. ELIG soil where 10 labs participated in generating data).

Waters –

The R&D Manager or delegate will periodically prepare QC samples for an ILCP between the labs in the Envirolab Group. Samples may be prepared from standard solutions, independant check solutions and/or solutions remaining from previous proficiency programs (stability may have to be ascertained. These solutions will generally be of known concentration.

Spike solutions using products may also be prepared for comparison purposes e.g. petrol for TRH/BTEX or Diesel for PAHs etc.

Table QC1 - Containers, Preservation Requirements and Holding Times - Soil

Parameter	Container	Preservation	Maximum Holding Time
Acid digestible metals and metalloids - Total and TCLP (As,Cd.,Cu,Cr,Ni,Pb,Zn)	Glass with Teflon Lid	Nil	6 months
Mercury	Glass with Teflon Lid	Nil	28 days
TPH / BTEX / VOC / SVOC / CHC	Glass with Teflon Lid	4^oC, zero headspace	14 days
PAHs (total and TCLP)	Glass with Teflon Lid	4^oC [1]	14 days
Phenols	Glass with Teflon Lid	4^oC [1]	14 days
OCPs, OPPs and total PCBs	Glass with Teflon Lid	4^oC [1]	14 days
Asbestos	Sealed Plastic Bag	Nil	N/A

Table QC2 - Containers, Preservation Requirements and Holding Times - Water

Parameter	Container Volume (mL)	Preservation	Maximum Holding Time
Heavy Metals	60mL Plastic	Field filtration 0.45µm HNO_3 / 4^oC	6 months
Mercury	60mL Plastic	Field filtration 0.45µm HNO_3 / 4^oC	~~6 months~~ 28 days
Cyanide	125mL Amber Glass or 125mL Opaque HDPE	pH > 12 NaOH / 4^oC	~~6 months~~ 14 days
TPH (C6-C9) / BTEX / VOCs SVOCs / CHCs	4 x 44mL Glass	HCl / 4^oC [1] or Sodium Bisulphate	14 days
TPH (C10-**C40**) / PAH / Phenolics OCP / OPP / TDS / pH	3 x 1L Amber Glass	None / 4^oC [1]	28 days (TDS is 7 days, pH is ideally a field test and should be analysed ASAP)

Notes: [1] = Extraction within 14 days, Analysis within 40 days.

Table QC3 - Analytical Parameters, PQLs and Methods - Soil *(Routine Levels)*

Parameter	Unit	PQL	Method Reference
Metals in Soil			
Arsenic - As[1]	mg / kg	4	USEPA 200.7 (also reference USEPA 6010C and 3050)
Cadmium - Cd[1]	mg / kg	0.4	USEPA 200.7 (also reference USEPA 6010C and 3050)
Chromium - Cr[1]	mg / kg	1	USEPA 200.7 (also reference USEPA 6010C and 3050)
Copper - Cu[1]	mg / kg	1	USEPA 200.7 (also reference USEPA 6010C and 3050)
Lead - Pb[1]	mg / kg	1	USEPA 200.7 (also reference USEPA 6010C and 3050)
Mercury - Hg[2]	mg / kg	0.1	USEPA 7471A (also reference USEPA 3050)
Nickel - Ni[1]	mg / kg	1	USEPA 200.7 (also reference USEPA 6010C and 3050)
Zinc - Zn[1]	mg / kg	1	USEPA 200.7 (also reference USEPA 6010C and 3050)
Total Petroleum Hydrocarbons (TRHs) in Soil			
old fractions			
C_6-C_9 fraction	mg / kg	25	USEPA 8260
C_{10}-C_{14} fraction	mg / kg	50	USEPA 8000
C_{15}-C_{28} fraction	mg / kg	100	USEPA 8000
C_{29}-C_{36} fraction	mg / kg	100	USEPA 8000
NEPM 2013 Fractions			
C_6-C_{10} fraction	mg / kg	25	USEPA 8260
$>C_{10}$-C_{16} fraction	mg / kg	50	USEPA 8000
$>C_{16}$-C_{34} fraction	mg / kg	100	USEPA 8000
$>C_{34}$-C_{40} fraction	mg / kg	100	USEPA 8000
BTEX in Soil			
Benzene	mg / kg	0.2	USEPA 8260
Toluene	mg / kg	0.5	USEPA 8260
Ethylbenzene	mg / kg	0.5	USEPA 8260
m & p Xylene	mg / kg	1	USEPA 8260
o- Xylene	mg / kg	0.5	USEPA 8260
Other Organic Contaminants in Soil			
PAHs	mg / kg	0.05-0.2	USEPA 8270
CHCs	mg / kg	1	USEPA 8260
VOCs	mg / kg	1	USEPA 8260
SVOCs	mg / kg	1	USEPA 8260
OCPs	mg / kg	0.1	USEPA 8140, 8080
OPPs	mg / kg	0.1	USEPA 8140, 8080
PCBs	mg / kg	0.1	USEPA 8080
Phenolics	mg / kg	5	APHA 5530
Asbestos			
Asbestos	mg / kg	Presence / Absence	AS4964-2004

Notes:

1. Acid Soluble Metals by ICP-AES
2. Total Recoverable Mercury

Table QC4 - Analytical Parameters, PQLs and Methods - Groundwater

Parameter	Unit	PQL	Method
Heavy Metals			
Antimony - Sb	µg/L	1	USEPA 200.8
Arsenic - As	µg/L	1	USEPA 200.8
Beryllium - Be	µg/L	0.5	USEPA 200.8
Cadmium - Cd	µg/L	0.1	USEPA 200.8
Chromium - Cr	µg/L	1	USEPA 200.8
Cobalt - Co	µg/L	1	USEPA 200.8
Copper - Cu	µg/L	1	USEPA 200.8
Lead - Pb	µg/L	1	USEPA 200.8
Mercury - Hg	µg/L	0.05	USEPA 7471A
Molybdenum - Mo	µg/L	1	USEPA 200.8
Nickel - Ni	µg/L	1	USEPA 200.8
Selenium - Se	µg/L	1	USEPA 200.8
Silver - Ag	µg/L	1	USEPA 200.8
Tin ~~(inorg.)~~ - Sn (all forms)	µg/L	1	USEPA 200.8
Nickel - Ni	µg/L	1	USEPA 200.8
Zinc - Zn	µg/L	1	USEPA 200.8
Total Petroleum Hydrocarbons (TRHs)			
C_6-C_9 fraction	µg/L	10	USEPA 8220A / 8000
C_{10}-C_{14} fraction	µg/L	50	USEPA 8000
C_{15}-C_{28} fraction	µg/L	100	USEPA 8000
C_{29}-C_{36} fraction	µg/L	100	USEPA 8000
NEPM 2013			
C_6-C_{10} fraction	µg/L	10	USEPA 8220A / 8000
>C_{10}-C_{16} fraction	µg/L	50	USEPA 8000
>C_{16}-C_{34} fraction	µg/L	100	USEPA 8000
>C_{34}-C_{40} fraction	µg/L	100	USEPA 8000
BTEX			
Benzene	µg/L	1	USEPA 8260
Toluene	µg/L	1	USEPA 8260
Ethylbenzene	µg/L	1	USEPA 8260
m- & p-Xylene	µg/L	2	USEPA 8260
o-Xylene	µg/L	1	USEPA 8260
Polyciclic Aromatic Hydrocarbons (PAHs)			
PAHs Level 2	µg/L	0.1	USEPA 8270
Benzo(a)pyrene Level 3	µg/L	0.01	USEPA 8270
OrganoChlorine Pesticides (OCPs) Trace Level			
Aldrin	µg/L	0.001	USEPA 8082A
Chlordane	µg/L	0.001	USEPA 8082A
DDT	µg/L	0.001	USEPA 8082A
Dieldrin	µg/L	0.001	USEPA 8082A
Endosulfan	µg/L	0.001	USEPA 8082A
Endrin	µg/L	0.001	USEPA 8082A
Heptachlor	µg/L	0.001	USEPA 8082A
Lindane	µg/L	0.001	USEPA 8082A
Toxaphene	µg/L	0.001	USEPA 8082A

Parameter	Unit	PQL	Method
Chlorinated Hydrocarbons (CHCs)			
1,2-dichlorobenzene	µg/L	1	USEPA 8260C
1,3-dichlorobenzene	µg/L	1	USEPA 8260C
1,4-dichlorobenzene	µg/L	1	USEPA 8260C
1,2,3-trichlorobenzene	µg/L	1	USEPA 8260C
1,2,4-trichlorobenzene	µg/L	1	USEPA 8260C
Hexachlorobutadeine	µg/L	1	USEPA 8260C
1,1,2-trichloroethane	µg/L	1	USEPA 8260C
Hexachloroethane	µg/L	10	USEPA 8270D
Other CHCs	µg/L	1	USEPA 8260C
Semi-Volatile Organic Compounds (SVOCs)			
Aniline	µg/L	10	USEPA 8270D
2,4-dichloroaniline	µg/L	10	USEPA 8270D
3,4-dichloroaniline	µg/L	10	USEPA 8270D
Nitrobenzene	µg/L	10	USEPA 8270D
2,4-dinitrotoluene	µg/L	10	USEPA 8270D
2,4,6-trinitrotoluene	µg/L	10	USEPA 8270D
Phenolic Compounds			
Phenol	µg/L	10	USEPA 8270D
2-chlorophenol	µg/L	10	USEPA 8270D
4-chlorophenol	µg/L	10	USEPA 8270D
2, 4-dichlorophenol	µg/L	10	USEPA 8270D
2,4,6-trichlorophenol	µg/L	10	USEPA 8270D
2,3,4,6-tetrachlorophenol	µg/L	10	USEPA 8270D
Pentachlorophenol	µg/L	10	USEPA 8270D
2,4-dinitrophenol	µg/L	100	USEPA 8270D
Miscellaneous Parameters			
Total Cyanide	µg/L	4	APHA 4500C&E-CN
Fluoride	µg/L	100	APHA 4500 F-C
Salinity (TDS)	mg/L	5	APHA 2510
pH	units	0.1	APHA 4500H+
OrganoPhosphate Pesticides (OPPs) Trace Level			
Azinphos Methyl	µg/L	0.01	USEPA 8082A/8270D
Chloropyrifos	µg/L	0.01	USEPA 8082A/8270D
Diazinon	µg/L	0.01	USEPA 8082A/8270D
Dimethoate	µg/L	0.01	USEPA 8082A/8270D
Fenitrothion	µg/L	0.01	USEPA 8082A/8270D
Malathion	µg/L	0.01	USEPA 8082A/8270D
Parathion	µg/L	0.01	USEPA 8082A/8270D
Temephos	µg/L	0.01	USEPA 8082A/8270D
Polychlorinated Biphenyls (PCBs) Trace Level			
Individual PCBs	µg/L	0.01	USEPA 8082A/8270D

Table QC5 - QC Sample Data Acceptance Criteria

QC Sample Type	Method of Assessment	Acceptable Range
Field QC		
Blind Duplicates and Split Samples	The assessment of split duplicate is undertaken by calculating the Relative Percent Difference (RPD) of the duplicate concentration compared with the primary sample concentration. The RPD is defined as: $RPD = 100 \times \frac{\mid X_1 - X_2 \mid}{\text{mean (X1, X2)}}$ Where: X_1 and X_2 are the concentrations of the primary and duplicate samples.	The acceptable range depends upon the levels detected: - 0-150% RPD (when the average concentration is <5 times the LOR/PQL) - 0-75% RPD (when the average concentration is 5 to 10 times the LOR/PQL) - 0-50% RPD (when the average concentration is >10 times the LOR/PQL)
Rinsate & Trip Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL
Laboratory prepared Trip Spike	The Trip Spike is analysed after returning from the field and the % recovery of the known spike is calculated.	70 - 130%
Laboratory QC		
Laboratory Duplicates	Assessment of Lab Duplicate RPD as per Blind Duplicates and Split Samples.	The acceptable range depends upon the levels detected: - Any RPD (when the average concentration is <5 times the PQL) - 0-50% RPD (when the average concentration is >5 times the PQL
Surrogates Matrix Spikes Laboratory Control Samples	Assessment is undertaken by determining the percent recovery of the known surrogate spike (SS) or addition to the sample. $\% \text{ Recovery} = 100 \times \frac{C - A}{B}$ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; and C = Calculated Concentration.	60-140% (General Analytes) 70-130% (Inorganics / Metals) 60-140% (Organics) 10-140% (SVOC and Speciated Phenols) If the result is outside the above ranges, the result must be <3x Standard Deviation of the Historical Mean (calculated over the past 12 months).
Sample Matrix Spike Duplicates	Recovery RPD	<30% (Inorganics & Organics)
Method Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL

Note: PQL - Laboratory Practical Quantitation Limit (PQL) or the minimum detection limit for a particular analyte.
LOR = Limit of Reporting