

THE TRUSTEE FOR DREP1 MONA VALE SUB TRUST



Detailed Site Investigation and Acid Sulfate Soil Assessment

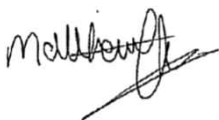
159-167 Darley Street West, Mona Vale, NSW

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EXECUTIVE SUMMARY

The Trustee for DREP1 Mona Vale Sub Trust ('the client') engaged EI Australia Pty Ltd (EI) to complete a Detailed Site Investigation and Acid Sulfate Soil Assessment (DSI) of 159-167 Darley Street West, Mona Vale, NSW ('the site'), to assess the nature and degree of on-site contamination associated with current and former uses of the property.

The site is located within the Local Government Area (LGA) of Northern Beaches Council and occupies an area of 6,123 m². The site is comprised of five adjoining lots identified as Lots 1, 2, 3, 4 and 5 in DP11108.

The proposed development will involve demolition of existing buildings and the construction of three separate three storey residential buildings, overlying a lower ground and basement level. Some ground floor residential apartments will be constructed as slab on ground.

Objectives

The purpose of this assessment is to enable the development to meet the requirements of State Environmental Planning Policy (Resilience and Hazards) (2021) and obligations under the *Contaminated Land Management Act 1997* (CLM Act), for the assessment and management of contaminated soil and/or groundwater present on site. As such, the main objectives of this assessment were to:

- Investigate the degree of any potential contamination by intrusive sampling and laboratory analysis, for relevant contaminants;
- Where site contamination is confirmed, make recommendations for the appropriate management of any contaminated soils and/or groundwater.
- Provide a conclusion regarding suitability of the site for the proposed development.

Findings

The key findings of this DSI were as follows:

- The site consisted of four free standing residential dwellings which occupied five adjoining lots. The dwellings on Lots 2, 3, 4 and 5 in DP11108 (159, 161 and 163-165 Darley Street West) where constructed before 1955. The dwelling on lot 1 in DP11108 (167 Darley Street West) was constructed around 1975
- The site and surrounding area has been used for residential purposes since at least 1955, apart from Bayview Golf Club to the north and associated clubhouse to the north-east. Redevelopment of properties east of the site for higher density residential use occurred sometime between 1991 and 2005. There is commercial/industrial use within a 500m radius of the site.
- The site was free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site was not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- Site inspection found no visual evidence of gross contamination. No suspicious odours were detected during the site inspection, or during any of the field (sampling) works.
- There was no evidence that underground storage tanks (USTs) were present on the site. No above-ground storage tanks (ASTs) were identified.
- Fibre cement sheeting was observed in the garage of 161 Darley Street West.
- Access was not provided to the rear of 159 Darley Street West to perform soil sampling.

- The site lithology was generalised as a narrow layer of fill consisting of sandy clay, silty clay, clayey sand (to average depth of 0.4mBGL), overlying residual sandy clay and sandstone bedrock (from 3.4 to 7.3mBGL).
- In accordance with the Pittwater Local Environmental Plan 2014, the site is located within a Class 5 area, and acid sulfate soils are not expected to be present at the site. Intrusive investigation and assessment of acid sulfate soil parameters found that the soil was acidic however actual (AASS) and potential (PASS) acid sulfate soil was not present within the boundary of the site. Management of acid sulfate soil is not required.
- An assessment of the collected soil samples against adopted health-based criteria (NEPC, 2013) for the site area was conducted. All analytes met the adopted guidelines, with the exception of;
 - Asbestos detection in shallow fill samples BH112_0.00-0.10 (Chrysotile and Amosite asbestos found in approximately 20x10x5mm cement sheet fragment) and BH2M_0.10-0.20 (Chrysotile and Amosite asbestos found as approximately 5x5x2mm fibrous mass below the RL of 0.1g/kg).
- Groundwater was gauged at three monitoring wells and was found to be between 3.4 and 7.3 mBGL. The potentiometric slope was determined to be north towards Cahill Creek
- Groundwater was observed to be turbid but free from odour or staining. The water was acidic, saline and oxidising.
- An assessment of the collected groundwater samples against the NEPC (2013) and ANZG (2018) criteria was conducted. All analytes met adopted criteria with the exception of the following:
 - Chromium (Cr) (at BH3M) and copper (Cu) nickel (Ni) and zinc (Zn) at BH1M, BH2M and BH3M exceeded adopted groundwater investigation levels.
 - Metal concentrations were consistent with natural (background) conditions in urban environments and there was no impact from in-situ soil material.
- The CSM developed for the site was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential onsite and offsite receptors. However some data gaps remained due to access limitations and occupation of existing residential dwellings.

Conclusion

Based on the findings of this DSI and with due consideration of EI's Statement of Limitations (**Section 12**), it was concluded that the potential for site contamination is low, however minor asbestos occurrence was found in fill at two locations. Data gaps remained due to site access limitations.

The site can be made suitable for the proposed development provided that the recommendations presented below and in **Section 11** are followed. Recommendations can be incorporated into the planning and consent process for the proposed development.

Recommendations

EI makes the following recommendations in relation to the proposed development:

- Preparation of a remediation action plan that includes the following:
 - After demolition of existing buildings, data gap investigation to assess soil for contaminants of potential concern within the footprints of existing buildings;
 - After demolition of existing buildings, asbestos quantification (gravimetric protocol according to NEPC 2013) of soil by sampling from test pits across the site;

- Development of remediation methodology for management of asbestos found in fill at locations BH2M and BH112, and asbestos or other contamination at locations identified upon completion of the data gap investigation.
- Inclusion of an unexpected finds protocol (UFP) to manage, according to legislation and guidelines, previously unknown contamination sources (such as soil staining and odour, buried asbestos or underground storage tanks) should these be identified during site works.
- Remediation of asbestos found in fill at BH2M and BH112, and asbestos or other contamination identified at other locations following data gap investigation;
- Hazard materials assessment of existing buildings and preparation of a hazardous materials report. This will guide demolition of existing buildings and prevent uncontrolled distribution of hazardous materials during demolition;
- Preparation of an asbestos management plan for management of asbestos during demolition and subsequent soil remediation according to Work Health and Safety Regulation 2017;
- Waste classification of waste and surplus material (including potential virgin excavated natural material - VENM) to be removed from the site, in accordance with the NSW EPA (2014) Waste Classification Guidelines, Protection of the Environment Operations Act 1997, and Work Health and Safety Regulation 2017;
- Assessment of any soil/fill material imported onto the site. Imported soil must be classified as virgin excavated natural material (VENM) or have a classification certificate indicating that it is suitable for the proposed land use;
- Preparation of a site validation report describing additional investigations, remediation and waste classification. The Site validation report shall provide a conclusion regarding suitability of the site for the proposed development.

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1. INTRODUCTION

1.1 Background and Purpose

EI Australia Pty Ltd (EI) was engaged by The Trustee for DREP1 Mona Vale Sub Trust ('the client') to complete a Detailed Site Investigation and Acid Sulfate Soil Assessment (ASSA) for 159-167 Darley Street West, Mona Vale, NSW ('the site'). This DSI and ASSA, prepared by EI Australia, is submitted to the Department of Planning, Housing and Infrastructure (DPHI) on behalf of The Trustee for DREP1 Mona Vale Sub Trust (the Applicant) in support of a State Significant Development Application (SSDA), identified as SSD-91496958, for in-fill affordable housing at the site.

The site is located at 159-167 Darley Street West, Mona Vale within the Northern Beaches Council Local Government Area (LGA) (**Figure 1, Appendix A**). It is comprised of five land (lot and deposited plan (DP) cadastral) parcels, is legally described as Lots 1-5 of DP11109 and owned by Darleydev Pty Ltd. The site has an area of approximately 6,123m², with a 76m frontage to Darley Street West to the northeast. At the time of inspection on 12 December 2024, no construction works had been conducted and residential buildings still occupied each land parcel.

The purpose of this assessment is to enable the developer to meet the requirements of State Environmental Planning Policy (Resilience and Hazards) (2021) under the Contaminated Land Management Act 1997 (CLM Act), for the assessment and management of contaminated soil and/or groundwater.

On 22 August 2025, DPHI issued Secretary's Environmental Assessment Requirements (SEARs) to the Applicant for the preparation of an Environmental Impact Statement (EIS) for the proposed development. This report has been prepared to respond to the relevant SEARs summarised in the table below.

SEAR Requirement Reference	Response Reference in this Report
12. Ground and Water Conditions - Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site and including soil erosion. - Where required provide a Groundwater Impact Assessment in accordance with relevant Groundwater Guidelines. If the proposed development is on land identified as having high salinity or acid sulfate soil potential in an EPI provide a Salinity Management Plan or Acid Sulfate Soil Management Plan that includes appropriate management measures and strategies.	Samples from boreholes BH1M and BH2M were assessed against the adopted ASSMAC (1998) Action Criteria for Acid Sulfate Soils. It was concluded that there is no evidence that actual (AASS) or passive (PASS) acid sulfate soil is present within the boundaries of the subject site. See Section 9.3 Acid Sulfate Soil Impacts .
13. Contamination and Remediation In accordance with Chapter 4 of the State Environmental Planning Policy (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.	The site can be made suitable for the proposed development provided that the recommendations presented in Section 11 are followed. See Section 11: Recommendations .

1.2 Proposed Development

This SSDA seeks consent for the design and construction of a new residential flat development comprising.

- Site preparation works including demolition, excavation and tree removal;
- Construction of three (3) x 6-storey residential flat buildings, comprising:
 - o 81 apartments, including:
 - 71 market apartments;
 - 10 affordable apartments (10.5% of GFA);
 - o Separate residential lobbies;
 - o Communal open space;
- Construction of 1-3 storeys of basement parking, comprising
 - o 163 car parking spaces, including:
 - 153 residential spaces;
 - 9 accessible residential spaces;
 - One (1) car wash bay / visitor space;
 - o 27 bicycle parking spaces;
 - o Two (2) motorcycle parking spaces;
 - o Waste and storage facilities;
- Associated landscaping, including transplanting of one (1) tree and planting of new trees and vegetation.

Bulk Excavation Level (BEL) is expected to be RL 1.42 mAHD however, locally deeper excavation might be required for footings, crane pads and service trenches.

Full details of the proposed development are set out in the accompanying Architectural Drawings and Landscape Drawings prepared by PBD Architects and Arcadia (**Appendix C**), respectively.

1.3 Regulatory Framework

The following regulatory framework and guidelines were considered during this DSI:

- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality;
- *Contaminated Land Management Act 1997*;
- *Environmental Planning and Assessment Act 1979*
- NSW EPA (2022) *Contaminated Land Sampling Design Guidelines*;
- NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme- 3rd Edition*;
- NSW EPA (2020) *Guidelines for Consultants Reporting on Contaminated Land*; and
- NEPC (2013) Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater;
- NEPC (2013) Schedule B(2) Guideline on Site Characterisation;
- Penrith Local Environmental Plan 2010;
- State Environmental Planning Policy (Resilience and Hazards) 2021

1.4 Project Objectives

The primary objectives of this investigation were to:

- Evaluate the potential for site contamination on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources;

- Investigate the degree of any potential contamination by intrusive sampling of soil and groundwater and laboratory analysis, for relevant contaminants;
- Establish whether Acid Sulfate Soils are present on the site;
- Determine the preliminary waste classifications for the site;
- Where site contamination is confirmed, make recommendations for the appropriate management of any contaminated soils and/or groundwater.
- Provide a conclusion regarding suitability of the site for the proposed development.

1.5 Scope of Works

To achieve the above objectives, the following scope of works were completed:

Desktop Study

- Review of previous reports conducted at the subject site;
- Review of relevant hydrogeological and soil landscape maps for the project area;
- A search through OEH Land Information records to confirm that there are no statutory notices current on the site under the Unhealthy Building Land Act (1990) or the Contaminated Land Management Act (1997);
- Preparation of a Work, Health, Safety & Environmental Plan;
- Preparation of proposed bore location plan, and brief fieldwork plan including potential impacts on current site operations;
- Review of dial before you dig (DBYD) plans and any plans provided by the client of existing buried services on site; and
- A search for groundwater bore records within close vicinity (500m radius) of the site;
- A search of historical aerial photographs, in order to review previous site use and the historical sequence of land development in the neighbouring area;
- A search of the List of NSW Contaminated Sites Notified to the EPA
- A search of property files archived by Northern Beaches Council, for information relating to operational site history;

Fieldwork and Laboratory Analysis

- A detailed site walkover inspection;
- Construction of test boreholes at fifteen (15) locations (BH101 to BH112, BH1M, BH2M and BH3M), distributed in an approximate systematic grid pattern across accessible areas of the site;
- Multiple level soil sampling within fill and natural soils at each of the test bores;
- Conversion of three (3) of the test boreholes into groundwater monitoring wells (BH1M, BH2M and BH3M);
- Completion of one groundwater monitoring event (GME), utilising the installed wells; and
- Laboratory analysis of selected soil and groundwater samples for the COPC.

Data Analysis and Reporting

Preparation of this DSI report which documents the desk study findings, the conceptual site model, data quality objectives, investigation methodologies and findings, according to NSW EPA (2020) guidelines.

2. SITE DESCRIPTION

2.1 Property Identification, Location and Physical Setting

The site identification details and associated information are presented in **Table 2-1**. The site location is shown in **Figure 1, Appendix A**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	159-167 Darley Street West, Mona Vale, NSW
Location Description	Approximately 25km north of Sydney CBD. Bound Darley Street West to the north and residential properties to the south, east and west.
Geographical Coordinates	Coordinates of the north-western corner (under GDA2020-MGA56): Easting: 342333.204; Northing: 6273074.926. (Source: https://maps.six.nsw.gov.au/)
Site Area	6,123m ² , (Appendix C) (Ref. PBD Architects, Feasibility Study, 159-167 Darley Street West, Mona Vale, date 4 December 2023)
Cadastral Identification	Lot 1 in DP11108 (167 Darley Street West) Lot 2 & 3 in DP11108 (163-165 Darley Street West) Lot 4 in DP11108 (161 Darley Street West) Lot 5 in DP11108 (159 Darley Street West)
State Survey Marks	Three State Survey marks are situated close to the site: SS149502: approximately 5m north, on Darley Street West SS149503: approximately 30m north-west, on Kunari Place SS149501: approximately 30m north-east, on Darley Street West (Source: https://maps.six.nsw.gov.au/)
LGA	Northern Beaches Council
Current Zoning	R2 – Low density residential (<i>Pittwater Local Environmental Plan 2014</i>)

2.2 Surrounding Land Use

The site is situated within a mixed use zone, including residential, infrastructure, commercial, enterprise corridor, public recreation areas and warehouses. The land uses and receptors immediately surrounding the site are described in **Table 2-2**.

Table 2-2 Local Land Use

Direction	Land Use Description	Sensitive Receptor (distance from site)
North	Darley Street West, a two lane, asphalt-paved road with parking spaces followed by Bayview Golf Club.	Pedestrians (immediately adjacent); Visitors to Bayview Golf Club (approximately 30m north).

Direction	Land Use Description	Sensitive Receptor (distance from site)
	Pittwater High School (300m north east)	Users of Pittwater High School Cahill Creek which runs through Bayview Golf Club
South	Residential properties followed by Park Street, a two lane, asphalt paved road.	Residents (immediately adjacent); Pedestrians (80m south)
East	Residential properties with SP68561, a two storey property with basement observed, immediately adjacent.	Residents (immediately adjacent);
West	Residential properties consisting of Lot 11 and 12 in DP226681 and SP3181, followed by Kunari Place and Bayview Golf Club.	Residents (immediately adjacent); Pedestrians (30m west) Visitors to Bayview Golf Club (approximately 100m west).

Sensitive land uses and environmental receptors within the vicinity of the site include local residents, Bayview Golf Course, Cahill Creek (approximately 200m west) and Mona Vale Beach (approximately 1.5km east).

2.3 Regional Setting

Local topography, (hydro)geology and soil landscape information is summarised in **Table 2-3**.

Table 2-3 Regional Setting Information

Attribute	Description
Topography	The site is located on the south side of Darley Street West with a downslope south to north from elevations of 11.56mAHN at the south-east corner of Lot 5 in DP11108 (159 Darley Street West) to 4.18mAHN at the north-west corner of Lot 2 in DP11108 (163-165 Darley Street West). (Ref. C-Side Surveyors, Plan showing detail and levels at No.1630165 Darley Street Mona Vale, Reference: 19076-DET, Dated 1 October 2019)
Site Drainage	Site drainage is likely to be consistent with the general slope (slope from south to north) of the site. Runoff expected to be collected by stormwater pits on Darley Street West or runoff to Cahill Creek.
Regional Geology	With reference to the State Government of NSW and Department of Regional New South Wales 2025, NSW 1500K Simplified Surface Geology, accessed from "The Sharing and Enabling Environmental Data Portal". The site geology consists of quaternary alluvial deposits, comprising of mud, silt, sand and gravels deposited by alluvial systems. This is underlain by Hawkesbury Sandstone, consisting of quartz-rich sandstone, with conglomerate, mudstone and siltstone.
Soil Landscape	With reference to the State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water 2025, Soil Landscapes of Central and Eastern NSW, accessed from "The Sharing and Enabling Environmental Data Portal", the site is underlain by the Erina Erosional Landscape (er), comprising of undulating to rolling rises and low hills on the Terrigal Formation. Soils are generally brownish black fine sandy loams or sandy clay loams.
Acid Sulfate Soil (ASS) Risk	In accordance with the Pittwater Local Environmental Plan 2014, the site is within a Class 5 area. As such, acid sulfate soils are not expected to be found at the site.
Nearest Water Features	Cahill Creek (located approximately 300m north). Cahill Creek discharges into Pittwater 500m north of the site. Pittwater is a marine environment.
Inferred Groundwater Flow Direction	The inferred groundwater flow in the vicinity of the site is from south to north, towards Cahill Creek.

2.4 Groundwater Bore Records and Local Groundwater Use

An online search of registered groundwater bores was conducted by EI on 10 October 2022 through WaterNSW (Ref. <https://realtimedata.waternsw.com.au/water.stm>). There were two registered bores was identified within a 500 m radius of the site. Refer to **Table 2-4** for summary details of these bores.

Table 2-4 Summary of Closest Registered Groundwater Bores

Bore	Date Drilled	Drilled Depth (m)	SWL (m BGL)	Purpose
GW111610	16/09/2011	30.50	1.2	Recreation
GW106813	29/11/2004	168.6	11.4	Domestic

Based on the findings above, the registered bores within a 500 m of the site were used for recreational and domestic purposes, with depths ranging from 30.50 to 168.6 m BGL. Standing water levels (SWL) for groundwater were recorded at depths between 1.2 to 11.4 m BGL. No other water quality information was available.

2.5 Site Walkover Inspection

Observations were recorded during a walkover inspection with soil at the site on 2nd December 2024 (summarised below), which was performed by EI Australia and qualified sub-contractors. Photographs taken at the time are presented in **Appendix D**.

- The site consisted of 5 lots, comprising of 4 separate residential properties. The properties exist in a stepped topography. All residences were occupied at the time of site inspection;
- The site was downslope from south-east to north-west;
- Concrete slab driveways were observed at 167 and 161 Darley Street West. The concrete slabs were in good condition;
- Vegetation at 159 Darley Street West was observed to be overgrown. However no signs of stress were observed in vegetation throughout the entire site;
- A derelict shed was observed in the backyard of 159 Darley Street West, it was identified as a potential source of asbestos containing material;
- Access was not provided to access the rear of 159 Darley Street West for soil sampling.
- Fibre cement sheeting was observed in the garage of 161 Darley Street West.
- No suspicious odours or visual evidence of (gross) contamination were observed at any parts of the site; and
- There was no evidence, by way of fill/dip points or vents, that underground storage tanks (USTs) were present on the site. No above-ground storage tanks (ASTs) were identified.

3. SITE HISTORY AND SEARCHES

3.1 Historical Aerial Review

Information relating to past potential land uses, as obtained from the available historical aerial photography is summarised in **Table 3-1**. The historical aerial photographs reviewed as part of this DSI were obtained on the publically available NSW Historical Imagery (<https://portal.spatial.nsw.gov.au>), with the photographs from 2000s onwards reviewed on the publically available Google Earth platform (<https://earth.google.com>), and are presented in **Appendix L**.

Table 3-1 Summary of Aerial Photograph History

Aerial Photograph	Site description based on historical aerial photographs	Land Use
1955	Three residential buildings exist across Lots 2, 3, 4 and 5 in DP11108 (163-165, 161 and 159 Darley Street West). Lot 1 in DP11108 (167 Darley Street West) appears vacant. A golf course appears to exist to the north of the site. Area to the west appears vacant. Residential properties exist to the east and south.	Vacant/ residential
1965	The site appeared relatively unchanged from 1955 aerial photograph. Development of a road to the west.	Vacant/ residential
1975	One additional residential building constructed on Lot 1 in DP11108. The balance of the site appeared relatively unchanged from 1965 aerial photograph. The area to the north of the site remains unchanged, however residential houses exist to the west.	Residential
1982, 1991	The site appeared relatively unchanged from 1975 aerial photograph.	Residential
2005	The site appeared relatively unchanged from 1991 aerial photograph. Properties to the west appear to have been developed into low density apartment buildings.	Residential
2014	The site appeared relatively unchanged from 2005 aerial photography. Major development of the residential area to the north-east of the site into what appears to be low density residential buildings and a possible club house for Bayview Golf Course. Most properties to the west of the site have been developed into low-rise residential buildings.	Residential

In summary, Lots 2, 3, 4 and 5 in DP11108 (163-165, 161 and 159 Darley Street West respectively) consisted of residential buildings since at least 1955. Lot 1 in DP11108, (167 Darley Street West) was vacant until circa 1975, when a residential building was constructed. A roadway was constructed to the west of the site between 1955 and 1965. Residential buildings surrounding the newly constructed road were built sometime between 1965 and 1975. Adjacent properties to the west were redeveloped between 1991 and 2005 and properties to the north-east of the site were then redeveloped sometime between 2005 and 2014. The site use has remained residential since at least 1955.

3.2 EPA Online Records

Searches of public registers maintained by the EPA and statutory notices and licensing agreements issued under the Contaminated Land Management Act 1997 and Protection of the Environment Operations Act 1997 were conducted by EI.

3.2.1 Contaminated Land – Record of Notices under Section 58 of CLM Act (1997)

An on-line search of the contaminated land public record of EPA Notices was conducted (12 October 2022). The contaminated land public record is a searchable database of:

- Orders made under Part 3 of the Contaminated Land Management Act 1997 (CLM Act);
- Notices available to the public under Section 58 of the CLM Act;
- Approved voluntary management proposals under the CLM Act that have not been fully carried out and where the approval of the Environment Protection Authority (EPA) has not been revoked;
- Site audit statements provided to the NSW EPA under section 53B of the CLM Act that relate to significantly contaminated land;
- Where practicable, copies of anything formerly required to be part of the public record; and
- Actions taken by NSW EPA under section 35 or 36 of the Environmentally Hazardous Chemicals Act 1985 (EHC Act).
- The contaminated land record search found that the site had not been notified as contaminated to the EPA.

3.2.2 List of NSW contaminated sites notified to EPA

A search through the List of NSW Contaminated Sites notified to the EPA under Section 60 of the CLM Act 1997 was conducted on 28th January 2025. This list is maintained by NSW EPA and includes properties on which contamination has been identified. Not all notified land is deemed to be impacted significantly enough to warrant regulation by the NSW EPA. The search identified four sites within 1000m of the site on the list as shown in **Table 3-2** Summary of Contaminated Sites Notified to the EPA below.

Table 3-2 Summary of Contaminated Sites Notified to the EPA

Suburb	Site Name	Address	Contamination Activity Type	Management Class
Mona Vale	Caltex Investigation Area	Polo Ave, Perak Street	Service Station	Contamination formerly regulated under the CLM Act
Mona Vale	Former Caltex service station and adjacent properties	79 Barrenjoey Road, 2 Polo Avenue, 6 Polo Avenue, 45	Service Station	Contamination formerly regulated under the CLM Act

Suburb	Site Name	Address	Contamination Activity Type	Management Class
		Bassett Street		
Mona Vale	Mona Vale Bus Depot	58 Darley Street	Bus Depot	Contamination currently regulated under CLM Act
Mona Vale	Taronga Place Mona Vale properties	Taronga Place	Bus Depot	Contamination currently regulated under CLM Act

From the above it is possible to verify that the EPA completed an assessment of the contamination on two of the sites, namely at Polo Avenue and at 79 Barrenjoey Road and surrounding sites and decided that regulation under the Contaminated Land Management Act 1997 was not required. It is also unlikely that any contamination from 58 Darley Street and Taronga Place will have any impact on the site, considering the inferred groundwater flow of contamination, away from the site, towards Mona Vale Beach as well as the distance from the site, at 870m and 700m respectively.

3.2.3 POEO Public Register

A search of the Protection of the Environment Operations (POEO) Act public register was conducted on 28th January 2025. The public register contains records relating to environmental protection licences, applications, notices, audits, pollution studies, and waste reduction programmes. The search found six records within 1,000m of the site, as detailed in **Table 3.3** below:

Table 3-3 Protection of the Environment Operations (POEO)

Organization	Address	Contamination Activity Type	Distance to site (m) and direction	Status
Solvents Australia Pty. Limited	77-79 Bassett Street, Mona Vale, NSW 2103	Waste storage and waste processing	3m West	Surrendered
Rivet Energy Pty Ltd	1825 Pittwater Road, Mona Vale, NSW 2103	Fuel tank accident. Clean up notice	489m West	Inactive
State Transit Authority of NSW	58 Darley Street, Mona Vale, NSW 2103	Waste activities	822m North	Current
Unomedical Pty Ltd	11-17 Wilmette Place, Mona Vale, NSW 2103	Sterilisation activities	734m North West	Surrendered

3.3 Council Records

A search of site history records held by the Northern Beaches Council in relation to the site was initiated on 26 November 2024. Documents held returned no evidence of any previous manufacturing activities, storage of chemicals, changes of site use or any reported incidents related to possible site contamination.

4. CONCEPTUAL SITE MODEL

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

4.1 Summary of Site History

Lots 2, 3, 4 and 5 in DP11108 were occupied by free standing residential buildings since at least 1955. Lot 1 in DP11108) was vacant until around 1975 when it was occupied by a free standing residential building. No evidence of building demolition was observed on the site.

Surrounding land uses were mostly residential to the east, south and west. Construction and redevelopment has occurred in adjacent eastern residences as well as at Bayview Golf Course to the north-east..

4.2 Predicted Subsurface Conditions

Regional geology was described as quaternary alluvial deposits, comprising of mud, silt, sand and gravels underlain by Hawkesbury Sandstone (**Table 2-3**). However intrusive investigation (**Section 7.1**) did not identify alluvial deposition. Based on the fieldwork conducted by EI (2024) the site subsurface conditions comprised of a narrow fill layer (sandy clay, silty clay, clayey sand fill (to average depth of 0.4mBGL)), overlying residual sandy clay, clayey sand, sand and sandstone bedrock (from 3.4 to 7.3mBGL).

The depth to groundwater ranged from 3.4 to 7.3mBGL.

4.3 Potential Contamination Sources

The potential sources of contamination to exist on the site are:

- The presence of (imported) filling materials of unknown origin and quality;
- Potential minor spillage of petrol / diesel and carry over from vehicle and machinery use on site from the abjection land use activities;
- Migration of contamination from offsite (upgradient neighbouring) sources;
- Potential ACM from existing buildings on-site.

4.4 PFAS Assessment

NSW EPA (2017) requires that PFAS are considered when investigating land contamination. An assessment of the probability for PFAS occurrence is provided in **Table 4-1**. This was based on considerations outlined in the *PFAS National Environmental Management Plan* (HEPA, 2020) and the EnRisk (2016) decision tree.

In this instance, the potential for PFAS to be present on site was found to be low and subsequently PFAS sampling / analysis of soil and water was deemed unwarranted.

Table 4-1 PFAS Decision Tree

Preliminary Screening	Probability of Occurrence ¹
Is the past or present site activity listed in the HEPA (2020) ² as being an activity with risk of fire. If so list activity: Fire not known to have occurred on the site.	L
Is the past or present off-site activity upgradient or adjacent to the site listed in the HEPA (2020) ² as being an activity with risk of fire. If so list activity	L
Did fire training involving the use of suppressants occur on-site?	L
Did fire training occur upgradient of or adjacent to the site? ³	L
Have "fuel" fires ever occurred on-site? e.g. ignition of fuel (solvent, petrol, diesel, kero) tanks? Not known	L
Have PFAS been used in manufacturing or stored on-site? ⁴	L
Could PFAS have been imported to the site in fill materials from a site with activity listed in HEPA (2018)?	L
Could PFAS-contaminated groundwater or run-off have migrated on to the site?	L
Is the site or adjacent sites listed in the NSW EPA PFAS Investigation Program? ⁵	L
If the probability is medium or high in any of the rows, does the site analytical suite need to be optimised to include preliminary sampling and testing for PFAS in soil (including ASLP analysis) and waters?	No. PFAS not identified as a COPC
Note 1 Probability: L – low (all necessary documentation has been reviewed and there is no recorded instance or compelling rationale); M – moderate (all necessary documentation has been reviewed and there is potential evidence of a recorded instance with compelling rationale); H – high (all necessary documentation has been reviewed and there is evidence of a recorded instance with compelling rationale). Note 2 Activities listed in Appendix B of HEPA (2020). Note 3 Runoff from upgradient PFAS use may impact surface water, soil, sediment and groundwater. Note 4 PFAS is used wide range of industrial processes and consumer products, including in the manufacture of non-stick cookware, specialised garments and textiles, Scotchguard™ and similar products (used to protect fabric, furniture, leather and carpets from oils and stains), metal plating and in some types of fire-fighting foam. (https://www.nicnas.gov.au/chemical-information/factsheets/chemical-name/perfluorinated-chemicals-pfas) Note 5 Refer to https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program. <i>Emerging Chemicals</i>	

4.5 Emerging Chemicals

The NSW EPA uses Chemical Control Orders (CCOs), a primary legislative tool under the *Environmentally Hazardous Chemicals Act 1985*, to control chemicals of concern and limit their potential impact on the environment. Considerations for chemicals controlled by CCOs, and other potential emerging chemicals, are outlined in **Table 4-2**.

In this instance, the potential for an emerging chemical of concern to be present on site was found to be low, with the possible exceptions of polychlorinated biphenyls (PCB) and pesticides, due to the importation of filling (from unknown sources) and/or former pesticide use.

Table 4-2 Emerging or Controlled Chemicals

Chemicals of Concern (CCO or emerging)	Decision
Were aluminium smelter wastes used or stored on site (CCO, 1986)?	No
Do dioxin contaminated wastes (CCO, 1986) have the potential to impact the site? ¹	No
Were organotin products (CCO, 1989) used or stored on site? ²	No
Were PCBs used or PCB wastes (CCO, 1997) stored on-site? ³	No (unlikely)
Were scheduled chemicals or wastes (CCO, 2004) used or stored? ⁴	Yes Possible minor application of OCPs to footings of buildings for termite control. Impact likely to be localised to near-surface soil.
Are other emerging chemicals suspected? ⁵	No
If Yes to any questions, has site sampling suite been optimised to include sampling for these chemicals of concern?	No

Note 1 From burning of certain chemicals, smelting or chemical manufacturing or fire on or near the Site.

Note 2 From anti-fouling paints used or removed at boat & ship yards and marinas.

Note 3 From older transformer oils & electrical capacitors

Note 4 Twenty-four priority organochlorine pesticides and industrial by-products

Note 5 Other chemicals considered as emerging e.g. 1,4 dioxane (associated with some VOCs).

4.6 Contaminants of Potential Concern (COPCs)

Based on the findings of the site history and searches in **Section 3**, the contaminants of concern at the site were considered to be:

- **In Soil** – heavy metals (HM), total recoverable hydrocarbons (TRH), volatile organic compounds (VOC; including the monocyclic aromatic hydrocarbon compounds *benzene*, *toluene*, *ethylbenzene* and *total xylenes* (BTEX)), polycyclic aromatic hydrocarbons (PAH), organochlorine and organophosphorus pesticides (OCP/OPP), polychlorinated biphenyls (PCB) and asbestos.
- **In Groundwater** - dissolved heavy metals, TRH and VOC (including BTEX).

4.7 Likelihood for Site Contamination

EI considered that there is low potential for contamination to be present on site. Previous land use (vehicle access), fill soils of unknown origin and quality, were considered to be the primary potential sources of contamination. Weathering fall out of asbestos containing materials (ACM) from buildings may also occur.

A qualitative assessment of potential exposure, human and environmental receptors and the risks posed by (or likelihood for) complete exposure pathways relating to these sources is summarised in **Table 4-3**.

Table 4-3 Assessment of Potential Contamination Risks

Potential Source	COPC	Media	Sensitive Receptor	Transport Mechanism	Exposure Pathway	Likelihood of Exposure Pathway
Vehicle and machinery operation	HM, TRH, VOC (BTEX), PAH and asbestos	Soil Groundwater	Future site residents; Aquatic environment off-site; Future intrusive workers.	Leaching Site earthworks Erosion & Surface runoff Advection and diffusion in groundwater	Inhalation Dermal contact Ingestion Vapour intrusion	Low
Imported fill soils of unknown origin and quality	HM, TRH, VOC (BTEX), PAH, OCP, OPP, PCB and asbestos	Surface soil	Site workers during construction; Future site residents.	Site earthworks Environmental erosion Surface runoff	Inhalation of asbestos fibres (if present) Dermal contact Ingestion Vapour intrusion	Moderate
Historical application of pesticides	OPP, OCP	Surface soil	Site workers during construction; Future site residents.	Direct spraying Leaching Site earthworks Environmental erosion	Dermal contact Ingestion	Low
Migration of contaminants from off-site (upgradient) sources;	HM, TRH and VOC (BTEX)	Groundwater	Site workers during construction; Future site residents; Aquatic environment; Future intrusive workers.	Leaching Advection and diffusion in groundwater	Inhalation of vapour Dermal contact Ingestion Biota uptake	Unlikely

5. METHODOLOGY

5.1 Sampling, Analytical and Quality Plan

The sampling, analytical and quality plan (SAQP) ensures that the data collected during environmental works are representative and provide a robust basis for assessment decisions. The SAQP for this investigation included the following:

- Data quality objectives (DQO), including a summary of the objectives of this investigation;
- Investigation methodology, including the media to be sampled, details of analytes and parameters to be monitored and a description of intended sampling points;
- Sampling procedures (including sample handling, preservation and storage);
- Field screening methods;
- Laboratory analysis methods; and
- Analytical quality assurance / quality control (QA/QC).

5.2 Data Quality Objectives

In accordance with the NEPC (2013) *Schedule B2 Guideline on Site Characterisation*, the USEPA (2006) *Data Quality Assessment* and NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme*, DQO were developed by the EI investigation team, following the NEPM- / EPA- endorsed, seven step process (**Table 5-1**). In doing so, the appropriate levels of data quantity and quality needed for the specific requirements of the project were established.

Table 5-1 Summary of Project Data Quality Objectives

DQO Step	Details
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.	The site was designated for low density, residential development. Detailed investigation was necessary to quantify any potential contamination and inform the future application to Council. The proposed development will involve demolition of existing buildings and the construction of three separate three storey residential buildings, overlying a lower ground and basement level. Some ground floor residential apartments will be constructed as slab on ground, The proposed development is generally equivalent to a generic NEPC (2013) land use scenario of residential with garden / accessible soil. The desktop study (CSM) indicated that the potential for site contamination was low, but with p application of fill soils of unknown origin as a contributing factor. This investigation was required to characterise the condition of the site soil, thereby enabling the developer to meet its obligations under Resilience and Hazards (2021).
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.	Based on the objectives outlined in Section 1.4, the decisions that needed to be made were: Have the nature, extent and source of any soil and/or groundwater impacts on-site been defined? What impact do the site specific, geologic and hydrogeological conditions have on the fate and transport of any contaminants that may be present? 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 off- site? Does the collected data provide sufficient information to allow the suitability of the site to be determined, or selection and design of an appropriate remedial strategy, if necessary? If the data does not provide sufficient information, what data gaps require closure to enable the suitability of the site to be determined, or selection and design of an appropriate remedial strategy?
3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision and specify which inputs require new environmental measurements.	Inputs to the decision making process included: Proposed development plans and land use; National and NSW EPA guidelines endorsed under the <i>NSW Contaminated Land Management Act 1997</i>; Observations obtained from an intrusive investigation in locations and to depths deemed appropriate for assessment purposes (or prior auger refusal); Sampling to verify the presence of on-site contamination and to evaluate the potential risks to sensitive receptors; and Laboratory analysis of selected samples for the contaminants of concern; At the end of the assessment, a decision had to be made regarding whether the environmental conditions were suitable for the proposed redevelopment, or if additional investigations, / remediation or management were required to make the site suitable.

DQO Step	Details
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.	<i>Lateral</i> – The cadastral boundaries of the site. <i>Vertical</i> – From the existing ground surface and underlying fill down to the deepest investigated depth within natural soil horizons and bedrock. <i>Temporal</i> – The findings of this DSI will hold true for as long as the site use remained passive in nature; that is, for as long as the site was used for the proposed use and there were no activities taking place either on-site or on immediately adjacent (upgrading) properties that could compromise environmental conditions.
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.	Parameters of interest included the laboratory results for primary and quality control soil analytical testing. Laboratory test results were accepted if: - All contracted laboratories were accredited by NATA for the analyses undertaken; - All laboratory analytical data were within pre-determined assessment criteria, in accordance with laboratory QA/QC policies and DQOs; - QA/QC results demonstrated acceptable reliability and representativeness of the data set; and - Laboratory practical quantitation limits (PQL) were below the adopted assessment criteria for the tested COPC. The principal decision rule for the investigation was: - If the concentrations of contaminants in the soil exceeded the adopted assessment criteria, then determine the need to further investigate the extent of impact(s) on-site. Decision criteria for QA/QC measures are defined by the Data Quality Indicators (DQI) in Table 5-2.
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.	Specific limits for this project were in accordance with National and NSW EPA guidance, appropriate indicators of data quality and standard procedures for field sampling and handling. This included the following points to quantify tolerable limits: The null hypothesis for the investigation was that the mean / maximum concentrations for the COPC exceeded relevant land use criteria across the site. The acceptance of the site was based on: - The 95% UCL of the average concentration of the data set satisfied the given site criterion (for a given contaminants of concern); - The standard deviation of the results was less than 50% of the relevant criterion; - No single results exceeded the assessment criteria by 250% or more; and - Concentrations for contaminant of concern that were below assessment criteria made or approved by the NSW EPA were treated as acceptable. Hence, if contaminant concentrations in soil exceeded the adopted criteria, further investigation was considered prudent. If no contamination was detected in soil, no further action was required.

DQO Step	Details
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.	To achieve the most resource-effective sampling and analysis design and generate data that satisfied the DQO: Written instructions were issued to guide field personnel in the required fieldwork activities. Sampling was conducted at 15 boreholes (BH101 to BH112, BH1M, BH2M and BH3M), placed in accessible parts of the site; Sampling was performed in accordance with NSW EPA guidelines and EI standard operating procedures (SOPs); Discrete fill and natural samples were analysed for the contaminants of concern; Groundwater sampling at three monitoring wells constructed in boreholes BH1M, BH2M and BH2M and analysis for contaminants of concern; and Review of the results, to determine if further sampling was warranted (that being where contaminant concentrations in soil or water were found to exceed the adopted criteria endorsed by the NSW EPA, relevant to the proposed land use(s)).

5.3 Data Quality Indicators

To ensure that the investigation data were of an acceptable quality, they were assessed against the data quality indicators (DQI) outlined in **Table 5-2**. Assessment of data quality is presented in **Section 6** and **Appendix J**.

Table 5-2 Data Quality Indicators

QA/QC Component	Data Quality Indicator(s)
Precision A quantitative measure of the variability (or reproducibility) of data	Data precision was assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision was deemed acceptable if RPDs were found to be less than 30%. RPDs that exceeded this range were considered acceptable where: Results were less than 10 times the limits of reporting (LOR); Results were less than 20 times the LOR and the RPD was less than 50%; or Heterogeneous materials or volatile compounds were encountered.
Accuracy A quantitative measure of the closeness of reported data to the “true” value	Data accuracy was assessed through the analysis of: Split field duplicate sample sets; Field and method blanks, analysed for the analytes targeted in the primary samples; Matrix spike sample sets; and Laboratory control samples.
Representativeness The confidence (expressed qualitatively) that data are representative of each medium present onsite	To ensure the data produced by the laboratory were representative of conditions encountered in the field, the following measures were taken: Blank samples run in parallel with field samples, to confirm there were no unacceptable instances of laboratory artefacts; Review of RPDs for field and laboratory duplicates to provide an indication that the samples were generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and The appropriateness of collection methodologies, handling, storage and preservation techniques was 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 investigation were evaluated as complete upon confirmation that: Standard operating procedures (SOPs) for sampling protocols were adhered to; and Copies of all chain of custody (COC) documentation were included and found to be properly completed. It could therefore be considered whether the proportion of “useable data” generated in the data collection activities was 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 several data sets from separate sampling episodes were required, issues of comparability were reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data were collected by experienced samplers and NATA-accredited laboratory methodologies will be employed.

5.4 Sampling Rationale

With reference to the CSM described in **Section 4**, soil investigation works were completed in accordance with the following rationale:

- Sampling *in situ* fill and natural soils from 15 locations (BH101 to BH112, BH1M, BH2M and BH3M), located across accessible parts of the site, which occupies an area of 6,123m² (0.61 ha). This generally complies with the minimum density recommended under the NSW EPA (2022) *Sampling Design – Part 1, Table 2*, which recommends 15 systematic sample locations for an area of 0.6 ha.; and
- Groundwater monitoring event (GME) at three monitoring wells;
- Laboratory analysis of representative samples for the identified contaminants of concern.

5.5 Investigation Constraints

Soils exist on site that were inaccessible at time of investigation (ie. soil under existing residential buildings or concrete paved areas). Possible soil contamination could exist at these locations. However, under the proposed developments, existing buildings are to be demolished and bulk excavation undertaken, resulting in the off-site removal of surplus soil materials. This would minimise the risk of any possible soil contamination.

5.6 Assessment Criteria

The assessment criteria adopted for this project are outlined in **Table 5-3**. 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.

For the purposes of this DSI, the adopted soil assessment criteria are referred to as the Soil Investigation Levels (SILs) and the adopted groundwater assessment criteria are referred to as Groundwater Investigation Levels (GILs).

Table 5-3 Adopted Investigation Levels for Soil and Groundwater

Medium	Guidelines	Rationale
Soil	NEPC (2013) HILs, HSLs, EILs, ESLs and Management Limits for TRH	Soil Health-based Investigation Levels (HILs) NEPC (2013) <i>HIL-A</i> thresholds for residential settings with accessible soils were adopted due to the open space covering the south western portion of the property and slab on ground structures. Soil Health-based Screening Levels (HSLs) NEPC (2013) <i>HSL-A&B</i> thresholds for vapour intrusion for low to high density residential (soil texture classification – Clay) were applied to assess potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene. Asbestos Health Based Screening Levels Presence / absence of asbestos (not-detected) were utilised for preliminary screening purposes. The WADoH (2009)) assessment criteria, as presented in NEPM (2013), were not adopted for this investigation. Ecological Investigation / Screening Levels (EILs / ESLs) NEPC (2013) EILs/ESLs for urban residential and public open space land use scenarios were adopted, to assess the potential impact to proposed landscaping areas, where plants could be exposed to soils and where precipitation may result in subsurface infiltration and resulting leaching of soil impacts to groundwater. The derived EILs were determined by the addition of site specific Added Contaminant Limit and the Ambient Background Concentration for a high traffic NSW suburb.

Medium	Guidelines	Rationale
		The adopted ESL's were based on soil texture. Management Limits for Petroleum Hydrocarbons Where the HSLs and ESLs for petroleum hydrocarbons were exceeded, sample results were also assessed against the NEPC (2013) <i>Management Limits</i> for the TRH F1-F4 fractions, to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards and adverse effects on buried infrastructure.
Groundwater	ANZG (2018) GILs for Fresh Waters	Groundwater Investigation Levels (GILs) for Fresh Waters ANZG (2018) provides GILs for typical, slightly-moderately disturbed aquatic ecosystems, Trigger Values (TVs) for the 95% level of protection of aquatic ecosystems; however, the 99% TVs were applied for the bio-accumulative analytes
	NEPC (2013) Groundwater HSLs for Vapour Intrusion	Health-based Screening Levels (HSLs) The NEPC (2013) groundwater HSL for vapour intrusion were used to assess potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts.
	NHMRC (2022) Recreational Criteria	Recreational Criteria Where no criteria are available, the lowest value from the NHMRC (2022) Drinking Water Human criteria (multiplied by a factor of 10) will be used to represent a recreational exposure of surface water bodies. The closest surface water body is the Nepean River (approx. 1.5 km west of the site).

Note 1: CRC CARE (2017) High Reliability Ecological Criterion for benzo(α)pyrene in "Urban residential and public open space" sites were applied where required for comparative purposes to assess protection of terrestrial ecosystems.

Note 2: ASSMAC (1998) Action Criteria were applied as management limits for assessment of soil for acid sulfate soil parameters and to determine if actual or potential acid sulfate soil was present at the site.

5.7 Soil Sampling Methodology

Soil investigation works conducted at the site are described in **Table 5-4**. Test bore locations are illustrated in **Figure 2 (Appendix A)**.

Table 5-4 Summary of Soil Sampling Methodology

Activity/Item	Details
Fieldwork	The field works were conducted on 17 December 2024 and 12 December 2024. Prior to commencement, the site services were surveyed by a qualified services locator. Review of plans supplied by Dial-Before-You-Dig was also performed.
Investigation Method	Test bores (BH101 to BH112), were constructed by hand auger. Test bores (BH1M to BH3M), were constructed with solid flight augers. Borehole details are presented in the detailed logs attached in Appendix E . Boreholes BH1M, BH2M and BH3M were then converted into groundwater monitoring wells.
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) 1731 - 2017. Soil descriptions are noted in the borehole logs presented in Appendix E .
Sample Collection	- Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars and zip-lock bags. - Blind field duplicates were separated from the primary samples and placed into glass jars. - A small amount of duplicate was separated from fill samples and placed into a zip-lock bag for asbestos analysis. - A small amount additional amount of duplicate was separated from BH1M and BH2M for both in-situ fill and natural samples and placed into a zip-lock bag for ASS analysis.
Decontamination Procedures	Soil samples were collected using grab/dry methods and placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars using dedicated nitrile gloves. Blind field duplicates were separated from the primary samples and placed into glass jars.
Sample Preservation and Transport	Samples were stored in chilled (ice brick-filled) chests, whilst on-site and in transit to the laboratory, which was performed under strict Chain-of-Custody (COC) conditions. Copies of the completed COC documentation (used to track sample movements) and laboratory Sample Receipt Advice (SRA) forms are provided in Appendix G .
Management of Soil Cuttings	Soil cuttings were used as backfill for completed boreholes, with the exception of monitoring wells (BH1M, BH2M and BH3M) which were backfilled using a combination of annular graded sand filter, granular bentonite and grout (see Appendix E).
Laboratory Analysis and Quality Control	Primary soil samples were analysed by SGS and Envirolab for the contaminants of concern. All samples were analysed within the required holding period, as documented in the corresponding laboratory reports (Appendix I). In addition to the split (inter-laboratory) field duplicate (analysed by Envirolab), QC testing comprised one blind (intra-laboratory) field duplicate, an equipment rinsate blank, a laboratory-prepared, trip spike soil sample and a laboratory-prepared, trip blank soil sample, all analysed by SGS.
Quality Control & Laboratory Analysis	Soil samples were submitted for analysis to SGS Laboratory (SGS) (primary laboratory). 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) (secondary laboratory). All samples were transported under

Activity/Item	Details
	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 6 .

5.8 Groundwater Investigation

The groundwater investigation works conducted at the site are described in **Table 5-5**. Monitoring well locations are illustrated in **Figure 2, Appendix A**.

Table 5-5 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Three (3) groundwater monitoring wells (BH1M, BH2M, BH3M) were installed on 2, 3, and 16 of December 2024. The wells (BH1M, BH2M, and BH3M) were subsequently developed on the same day following drilling, to remove any water and/or seepage following drilling. Groundwater level gauging, field testing and sampling of three new wells (BH1M, BH2M, BH3M) were conducted on 14th January 2025.
Well Construction	- On-site test bores were constructed to the following depths: - BH1M: 15 mBGL (screen interval at 8.5 – 15mBGL) - BH2M: 9 mBGL (screen interval at 4.5 – 9.0mBGL) - BH3M: 13.8 mBGL (bore drilling depth) (screen interval at 1.9 – 9.5 mBGL). Well construction was in general accordance with the standards described in NUDLC (2012) and involved the following (Appendix E): 50mm, Class 18 uPVC, threaded, machine-slotted screen and casing; - Base and top of each well was sealed with a uPVC cap; - Annular, graded sand filter to approximately 300 mm above top of screen interval; - Granular bentonite was applied above annular filter to seal the screened interval; - Cuttings backfilled to just below ground level; and - Surface completion was comprised of a stick-up through the ground surface.
Well Development	Well development was conducted by drilling staff following installation on 2, 3, and 16 of December 2024. Well development was considered successful upon purging three times the well volume or until dry.
Well Gauging	Monitoring wells were gauged for standing water level (SWL, depth to groundwater) prior to field testing and sampling event on 14th January 2025. Gauging was conducted using a water/oil interface probe.
Well Purging & Field Testing	Groundwater sampling was conducted using a GeoPump system (peristaltic) incorporating a Teflon-lined LDPE sample delivery tube for the monitoring well locations. Field measurement of water quality parameters was conducted on purged groundwater with a water quality meter (Hanna Multi Parameter 9829) positioned within a sample jar. Groundwater parameters tested in the field were Dissolved Oxygen (DO), Electrical Conductivity (EC), Oxidation-Reduction Potential (ORP), Temperature and pH. The measured parameters were recorded onto a field data sheet (Appendix M), along with the purged water volume at the time of measurement.

Activity/Item	Details
Decontamination Procedure	The water level probe and the pump were washed in a solution of potable water and Decon 90, and then rinsed with potable water. All sample containers were supplied by the laboratory for the particular project and only opened once immediately prior to sampling.
Sample Preservation	The following sample containers supplied by the laboratory were used to store groundwater samples: ▪ One, amber glass, acid-washed and solvent-rinsed bottle; ▪ Two, 40 ml amber glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and ▪ One, 250 mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). Samples collected for metals analysis were field-filtered. All containers were filled with sample to the brim then capped and stored in chilled chests, until completion of the fieldwork and during sample transit to the laboratory.
Quality Control & Laboratory Analysis	All groundwater samples were submitted for analysis by SGS Laboratory (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).
Sample Transport	After sampling, refrigerated sample chests were transported to SGS using strict Chain-of-Custody (COC) procedures. Inter-laboratory duplicate (ILD) samples were forwarded to Envirolab Services Pty Ltd (Envirolab) for QA/QC analysis. Sample Receipt Advice (SRA) was provided by each laboratory to document sample condition upon receipt. SRA and COC certificates are presented in Appendix G .

6. DATA QUALITY ASSESSMENT

6.1 Data Quality Assessment

In accordance with the NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme, Data Quality Objectives (DQOs) (based on the US EPA (2006) Data Quality Assessment) were established to determine the appropriate level of field and laboratory data quality needed for the specific data requirements of the project. The DQO process that was applied for this DSI is documented in **Table 6-1**. The findings of the data quality assessment in relation to the current investigation at the site are discussed in detail in **Appendix I**.

The QC measures generated from the field sampling and laboratory analytical program are summarised in **Table 6-1**.

Table 6-1 Quality Control Process

Data Quality	Control	Conformance [Yes, Part, No]	Report Sections
Preliminaries	Data Quality Objectives established	Yes	See Section 5
Field work	Suitable documentation of fieldwork observations including borehole logs, field notes.	Yes	See Appendix E and Appendix F
Sampling Plan	Use of relevant and appropriate sampling plan (density, type, and location)	Yes	See sample rationale
	All media sampled and duplicates collected	Yes	See Appendix B and Appendix I
	Use of approved and appropriate sampling methods	Yes	See Section 5
	Preservation and storage of samples upon collection and during transport to the laboratory	Yes	See Section 5
	Appropriate Rinsate, Field and Trip Blanks taken	Yes	See Appendix I
	Completed field and analytical laboratory sample COC procedures and documentation	Yes	See Appendix G and Appendix H
Laboratory	Sample holding times within acceptable limits	Yes	See Appendix I and Appendix J
	Use of appropriate analytical procedures and NATA-accredited laboratories	Yes	See Appendix I and Appendix J
	LOR/PQL low enough to meet adopted criteria	Yes	See Appendix I and Appendix J
	Laboratory blanks	Yes	See Appendix I and Appendix J
	Laboratory duplicates	Yes	See Appendix I and Appendix J

Data Quality	Control	Conformance [Yes, Part, No]	Report Sections
	Matrix spike/ (MS)	Yes	See Appendix I and Appendix J
	Surrogates (or System Monitoring Compounds)	Yes	See Appendix I and Appendix J
	Analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD)	Yes	See Appendix I and Appendix J
	Checking for the occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements	Yes	See Appendix E and Appendix M
Reporting	Report reviewed by senior staff to assess project meets desired quality, NSW EPA guidelines and project outcomes.	Yes	See Report Distribution page at front of report.

6.2 Quality Overview

On the basis of the field and analytical data validation procedure employed, the overall quality of analytical data produced for the site was considered to be of an acceptable standard for interpretive use and preparation of a conceptual site model (CSM).

7. RESULTS

7.1 Site Geology and Sub-surface Conditions

Fifteen (15) boreholes (BH101 to BH112 and BH1M to BH3M) were constructed in accessible areas of the site. Three (3) of the boreholes (BH1M, BH2M and BH3M) were converted to monitoring wells.

The general site geology encountered during the drilling of the soil investigation boreholes was a layer of filling overlying residual clay, followed by sandstone bedrock.

The geological information obtained during the investigation is summarised in **Table 7-1** (BH1M, BH2M, BH3M descriptions), with borehole logs from the works are presented in **Appendix E**.

Table 7-1 Generalised Subsurface Profile (mBGL)

Layer	Generalised Description	Depth to top of layer (m mBGL)	Average thickness (m)
Fill	Overall the fill at the drilled locations was found to have average thickness of 0.4m. The fill material mainly comprised of clayey SAND, silty SAND, sandy GRAVEL, fine grained with fine to medium grained sub-rounded to sub-angular gravels, rootlets and brick. No odours or staining were observed.	0.0	0.4
Natural CLAY/Natural SAND	Soil was predominately sandy CLAY with medium plasticity and medium grained SAND. No odours or staining noted.	0.1- 0.5	-
Bedrock (Sandstone)	Shale, grey-brown and pale grey; no odours or staining.	3.4 – 7.3	-

7.2 Field Observations

Soil samples were obtained and analysed from bores at various depths ranging between 0 to 2.6 mBGL. All soil samples collected were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, fragments of fibre containing substance (FCS), ash, slag and charcoal) and the following observations were noted:

- No odours were identified during the investigation;
- Some sub-rounded to sub-angular gravels were reported within fill materials;
- No fragments of FCS were visually observed in any of the examined soils;
- No ash or slag was observed in any of the examined soils;
- No visible evidence of potential or actual ASS (such as pale yellow deposits/coatings of jarosite), was observed in any of the bore cuttings.

7.3 Groundwater Monitoring Event

7.3.1 Monitoring Well Construction

Three monitoring wells (BH1M, BH2M and BH3M) were installed within the site boundary to investigate the onsite and offsite potential for groundwater contamination within the site and migration of contaminants off-site. No existing onsite groundwater monitoring wells were observed.

Well construction details for the three installed groundwater monitoring wells are summarised in **Table 7-2** and in **Appendix D**.

Table 7-2 Groundwater Monitoring Well Construction Details

Well ID	Bore depth (mBGL)	SWL (mBTC)	Ground Level (mRL est.)	RL (est.) (TOC)	SWL (mRL est.)	Screen Interval (m BGL)	Lithology Screened
BH1M	15.0	3.67	9	8.91	5.24	8.5-15	Sandstone
BH2M	14.0	3.19	8.5	8.41	5.22	4.5-9	Sandstone
BH3M	13.8	3.15	4	3.9	0.75	1.9-9.6	Clay

Notes:

Note 1 MBGL = metres below ground level.

Note 2 RL (TOC) – Reduced Level, estimated elevation at TOC in metres relative to Australian Height Datum (m AHD) from the provided survey plan.

Note 3 † WL - Calculated groundwater level, in m AHD (calculated as estimated RL – SWL).

7.4 Field Observations

One GME was conducted by EI on 14 January 2025 to sample all wells. Groundwater was evaluated in the field on the basis of odour and visual signs of contamination, with the following observations noted:

- Groundwater recovered from monitoring wells was pale grey to brown and turbid. There were no visual or olfactory signs of contamination

Water quality parameters recorded for all groundwater wells collected during the GME are presented in **Table 7-3**. Field data sheets are attached in **Appendix E**.

Table 7-3 Groundwater Field Data (14/01/25)

Well	SWL (mBGL)	DO (mg/L)	pH	EC (µS/cm)	T (°C)	ORP ¹ (mV)
BH1M	3.28	0.00	3.94	2,446	18.33	223.3
BH2M	3.76	0.00	3.68	4,237	19.09	212.5
BH3M	3.25	0.00	3.58	9,748	19.71	225.7

Notes:

¹ Field ORP (mV) readings adjusted to Standard Hydrogen Electrode (SHE) by adding field electrode potential (205mV).

As per readings presented above, groundwater recovered from the four wells can be considered to be:

- Oxidising
- Oxygen depleted;

- Acidic (pH <4);
- Saline (EC 4,237 – 9,748 $\mu\text{S}/\text{cm}$)

Standing water levels (SWL) measured at the wells collected during this GME varied from 3.25 to 3.76 mBGL (0.75 to 5.24 mRL). The water levels within the groundwater monitoring wells indicate a steep sloping water level towards BH3M, which coincides with the inferred groundwater flow direction of north-west towards Cahill Creek.

7.5 Laboratory Analytical Results

7.5.1 Soil Analytical Results

A summary of the soil analytical results for the tested (representative) soil samples is presented in **Table 7-4**. More detailed tabulation of results, showing the concentrations for individual samples alongside the adopted soil criteria, is presented in **Table 1, Appendix B**. The corresponding laboratory analytical reports are presented in **Appendix H**.

Table 7-4 Summary of Soil Analytical Results

Number of Samples	Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Sample(s) Exceeding SILs
Metals				
31	Arsenic	1	10	None
31	Cadmium	<0.3	<0.3	None
31	Chromium	6.2	35	None
31	Copper	1.6	34	None
31	Lead	4	72	None
31	Mercury	<0.5	0.1	None
31	Nickel	0.6	12	None
31	Zinc	3	320	None
PAH				
31	Naphthalene	<0.1	<0.1	None
31	Benzo(a)pyrene	<0.1	4.9	None
31	Carcinogenic PAHs (as B(a)P TEQ)	<0.3	7.4	None
31	Total PAH	<0.8	64	None
BTEX				
31	Benzene	<0.1	<0.1	None
31	Toluene	<0.1	<0.1	None
31	Ethyl benzene	<0.1	<0.1	None
31	Xylenes (total)	<0.3	<0.3	None
TRH				
31	F1	<25	<25	None
31	F2	<25	50	None
31	F3	<93	610	None

Number of Samples	Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Sample(s) Exceeding SILs
31	F4	200	200	None
Pesticides				
19	OCP	0.1	0.1	None
19	OPP	<1.7	<1.7	None
PCB				
19	Total PCB	<0.1	<0.1	None
Asbestos				
31	Asbestos (Presence/Absence)	Present	Present	Asbestos detected at BH2M_0.10-0.20 BH112_0.00-0.10

Note 1 Trigger value exceedance detected for EIL. Site specific EIL calculated from NEPM 2013 EIL.

Note 2 Trigger value exceedance detected for HIL A&B. The limit value derived from CRC Care Report No 39 Table 11.

7.5.2 Groundwater Analytical Results

A summary of laboratory results showing test sample quantities, maximum analyte concentrations and samples found to exceed the GILs, are presented in **Table 7-5**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted groundwater criteria are presented in **Table 2, Appendix B**.

Completed documentation used to track groundwater sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in **Appendix G** and all laboratory analytical reports for tested groundwater samples are presented in **Appendix H**.

Table 7-5 Summary of Groundwater Analytical Results

No. of primary samples	Analyte	Min Conc. (µg/L)	Max Conc. (µg/L)	Samples exceeding investigation levels
Metals				
3	Arsenic	2	2	None
3	Cadmium	0.1	0.5	None
3	Chromium (Total)	2	9	ANZG -Marine Water - 4.4µg/L BH3M (9 µg/L)
3	Copper	9	130	ANZG -Marine Water -1.3 µg/L BH1M (24 µg/L) BH2M (9 µg/L) BH3M (130 µg/L)
3	Lead	1	3	None
3	Mercury	<0.1	<0.1	None
3	Nickel	29	180	ANZG -Marine Water -7 µg/L BH1M (29 µg/L) BH2M 66 µg/L BH3M (180 µg/L)

No. of primary samples	Analyte	Min Conc. (µg/L)	Max Conc. (µg/L)	Samples exceeding investigation levels
3	Zinc	81	230	ANZG -Marine Water - 15µg/L BH1M (89 µg/L) BH2M 81 µg/L BH3M (230 µg/L)
PAHs				
3	Naphthalene	<0.1	<0.1	None
3	Benzo(a)pyrene	<0.1	<0.1	None
3	Total PAH	<1	<1	None
BTEX				
3	Benzene	<0.5	<0.5	None
3	Toluene	<0.5	<0.5	None
3	Ethyl benzene	<0.5	<0.5 ³	None
3	m/p-xylene	<1	<1	None
3	o-xylene	<0.5	<0.5	None
TRHs				
3	F1 ¹	<50	<50	None
3	F2 ²	<60	<60	None
3	F3 ³	<500	<500	None
3	F4 ⁴	<500	<500	None
VOCs				
3	Total VOC	<10	<10	None

To obtain F1, subtract the sum of BTEX concentrations from the C₆-C₁₀ fraction.

To obtain F2, subtract Naphthalene from the >C₁₀-C₁₆ fraction.

F3 -(C₁₆-C₃₄).

F4 -(C₃₄-C₄₀).

Note 1: Samples were analysed for total Chromium.

7.5.3 Acid Sulfate Soils Analytical Results

A summary of laboratory results showing the tested concentrations for individual samples alongside the adopted acid sulfate soil criteria (ASSMAC (1998) Action Criteria) are presented in **Table 3, Appendix B**.

Completed chain of custody documentation and laboratory receipt (i.e. COC and SRA forms) are provided in **Appendix G** and laboratory analytical reports for tested soil samples are presented in **Appendix H**.

8. Preliminary Waste Classification Results

Preliminary waste classification was conducted during this DSI. This information is for the purpose of development planning and does not constitute a formal waste classification certificate, as required by the NSW Waste Regulations 2014.

Soil analytical results were assessed against the NSW EPA (2014) *Waste Classification Guidelines*, as tabulated in **Tables 4 and 5 in Appendix B**. Laboratory documentations are attached in **Appendix G**. A discussion of an assessment against the guidelines for both fill and natural soils is outlined below.

8.1 Fill Soils

Fill soils across the site comprised clayey sand, silty sand, sandy gravel to an average depth of 0.4 mBGL. Detailed logs are presented in **Attachment E**. Sampling locations are shown on **Figure 2, Appendix A**. In determining the classification of fill soils across the site, the NSW EPA (2014) Guidelines note that a six step procedure must be followed. This procedure and associated rationale is highlighted in **Table 8-1**.

Table 8-1 Six-Step Classification Procedure

Step	Comments	Rationale
1. Is the waste special waste	Yes	Asbestos containing materials were detected in the soil samples (BH2M, and BH112). Clinical or related wastes, and/or waste tyres were not observed during the intrusive investigations.
2. Is the waste liquid waste?	No	Fill materials across the site comprised a soil matrix.
3. Is the waste 'pre classified'?	No	Material across the site has not been pre-classified with reference to NSW EPA (2014).
4. Does the waste possess hazardous waste characteristics?	No	Fill soils across the site were not observed to contain explosives, gasses, flammable solids, oxidising agents, organic peroxides, toxic substances, corrosive substances, coal tar, batteries, lead paint or dangerous goods containers.
5. Determine a waste's classification using chemical assessment.	Conducted	Limited chemical analysis was conducted on samples. Refer to Tables 4 and 5 in Appendix B .
6. Is the waste putrescible or non-putrescible?	Non-putrescible	Fill materials across the site did not appear to contain materials considered to be putrescible ¹ .

Note 1 Putrescible wastes generally contain organic matter capable of being decomposed by micro-organisms.

Based on the laboratory analytical results (as shown in **Tables 4 and 5, Appendix B**), fill soils in the vicinity of the hotspot areas (BH2M, and BH112) could be preliminary classified as **General Solid Waste (Non-putrescible) / Special Waste (Asbestos Waste)**; and Fill soils in the remainder areas of the site could be preliminary classified as **General Solid Waste (Non-putrescible)** with all concentrations below CT1.

Further sampling would be required to confirm this classifications following site demolition in accordance with the EPA (2014) Waste Classification Guidelines prior to off-site disposal

8.2 Natural Soils

The Protection of the Environment Operations Act 1997 (POEO Act) defines virgin excavated natural material (VENM) as:

“Natural material (such as clay, gravel, sand, soil or rock fines):

(a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities; and

(b) that does not contain any sulfidic ores or soils or any other waste; and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.”

In deciding whether natural soils on-site were indicative of VENM, the following items listed in **Table 7-2** were considered in line with the NSW EPA.

Table 8-2 VENM Classification Procedure

Step	Comments	Rationale
Is the material natural?	Yes	Natural materials logged within borehole log (Appendix E) comprised sandy clay and sandstone bedrock.
Is the material impacted by manufactured chemicals or process residues?	No	No odours and visual signs of contamination were observed in the natural soils.
Are the materials acid sulfate soils?	No	In accordance with the Pittwater Local Environmental Plan 2014, the site is within a Class 5 area. As such, acid sulfate soils are not expected to be found at the site. Multiple lines of evidence in Section 9.3 and acid sulfate soil results (Table 3 in Appendix B) revealed no evidence that actual (AASS) or passive (PASS) acid sulfate soil is present within the boundaries of the subject site.
Are naturally occurring asbestos soils present?	No	Naturally occurring asbestos has not been identified in the area. Chemical analysis of soil results (Table 1 in Appendix B) revealed the absence of asbestos in all natural soil samples.
Are there current or previous land uses that have (or may have) contaminated the materials?	No	Chemical analysis was conducted on natural samples. Refer to Table 1 in Appendix B . No contamination was identified in the tested samples.

Five natural soil samples collected across the site accessible area were analysed in this DSI . As shown in Table T2, all 5 samples were below the CT1 criteria and considered to be within natural background concentrations. As such, natural soils are preliminary classified as Virgin Excavated Natural Material.

Further sampling would be required to confirm these classifications in accordance with the EPA (2014) Waste Classification Guidelines post demolition, and fill removal prior to off-site disposal.

8.3 Preliminary Waste Volume Estimation

A summary of preliminary waste classifications and estimated volumes is provided in **Table 8-3**. Preliminary classification areas are illustrated on **Figure 3 (Appendix A)**. It should be noted that further sampling will be required to confirm these classifications and to be performed in accordance with the EPA (2014) Waste Classification Guidelines .

Table 8-3 Preliminary Waste Classification Summary

Preliminary Classification	Estimated Volume (m ³)
General Solid Waste / Special Waste (Asbestos Waste)	15
General Solid Waste (<CT1)	1,217
Virgin Excavated Natural Material	6,328

Note: Volume estimated based on the assumption of fill and VENM within the proposed basement footprint area only.

Based on a review of **Table 1** in **Appendix B**, it is also concluded that soils excluding the asbestos impacted area BH2M and BH112 were suitable to be remained onsite.

The classifications are preliminary only and additional sampling following demolition would be required prior to disposal of any soil material from the site.

9. SITE CHARACTERISATION

9.1 Soil Impacts

With reference to **Table 7-4** and **Table 2, Appendix B**, all boreholes (BH101 to BH112, BH1M, BH2M and BH3M) were assessed against the adopted HIL-B/HSL-A&B criteria (**Table 5-3**). Concentrations of contaminants of concern were reported below the adopted criteria for human health, except for;

- Asbestos detection in shallow fill samples BH112_0.00-0.10 (Chrysotile and Amosite asbestos found in approximately 20x10x5mm cement sheet fragment) and BH2M_0.10-0.20 (Chrysotile and Amosite asbestos found as approximately 5x5x2mm fibrous mass below the RL of 0.1g/kg).

Soil impact of asbestos appears limited to shallow filling (0-0.2m BGL).

9.2 Groundwater Impacts

Groundwater investigation was undertaken at three (3) monitoring well locations (BH1M, BH2M and BH3M) within the site.

Groundwater potentiometric slope was determined to be north towards Cahill Creek

Field testing found that the groundwater was somewhat turbid, with no odour or sheen, and was acidic, saline and oxidising.

From results summarised in **Table 7-5** and provided in **Table 3, Appendix B**, concentrations of potential contaminants in groundwater were found to be below the adopted human health-based criteria for site land use settings, with the exception of:

Metals

- Concentrations of priority metals were reported exceeding the adopted freshwater GILs (ANZG (2018)):
 - Chromium (Cr) at BH3M
 - Copper (Cu) at BH1M, BH2M and BH3M
 - Nickel (Ni) at BH1M, BH2M and BH3M, and
 - Zinc (Zn) at BH1M, BH2M and BH3M.

The concentrations of metals reported in groundwater were not consistent across the site, with BH3M reporting the generally higher concentrations than BH1M and BH2M. Although the concentrations of the priority metals exceeded the marine water GIL's, there was no evidence of contamination from in-situ soil material. Hence, concentrations of metals observed are consistent with expected background concentrations of an urban environment.

9.3 Acid Sulfate Soil Impacts

With reference to **Table 3, Appendix B**, samples from boreholes BH1M and BH2M were assessed against the adopted ASSMAC (1998) Action Criteria.

For thirteen out of seventeen samples, field pH (pH_F) was with a range of >4 but <5.5, therefore AASS was not indicated however the soil is acidic.

The reaction upon addition of peroxide was observed to be mild to moderate. The results for pH difference ($\text{pH}_F - \text{pH}_{\text{FOX}}$) which were within a range of 1.1 to 2.2, indicated that laboratory confirmation of PASS presence was required.

Suspended peroxide oxidation combined acidity (sPOCAS) sulphide testing was conducted for selected samples (BH1M_2.00-2.10, BH1M_2.50-2.60, BH1M_3.00-3.10, BH1M_4.00-4.10, BH1M_4.50-4.60, BH2M_1.50-1.60 and BH2M_2.50-2.60) to determine if ASS or PASS was present in soil.

All samples tested for sPOCAS returned a TPA concentration greater than the action criterion (18 mol H^+ /tonne). Furthermore, BH1M_2.00-2.10, BH1M_3.00-3.10 and BH1M_4.00-4.10 also returned a TSA above the action criterion (18 mol H^+ /tonne).

However, for all tested samples, S_{POS} was below the action criteria of 0.03 %S, therefore PASS is not indicated

Intrusive investigation determined that the subsurface soil profile summarised in **Table 7-1** was a narrow layer of filling (to 0.4 mBGL) overlying natural soil described as residual sandy clay then sandstone bedrock of the Hawkesbury Formation. There was no evidence of alluvial soil at the subject site.

The soil at the site is acidic. There is no evidence that actual (AASS) or passive (PASS) acid sulfate soil is present within the boundaries of the subject site.

9.4 Review of Conceptual Site Model

On the basis of investigation findings, the CSM discussed in **Section 4** was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential onsite and offsite receptors.

9.4.1 Data Gaps and Limitations

The distribution of soil sampling locations was limited to accessible areas of the site. There were occupied residential dwellings at the site and soil sampling was not conducted within the footprints of these buildings or in the rear of 159 Darley Street West. The majority soil sampling was limited to hand auger due to access limitations and to minimise disturbance to yard areas of dwellings.

Soil sampling was undertaken by sampling off hand auger at 12 locations to shallow depth (maximum 0.8 mBGL) and mechanical auger, at 3 locations where the deeper soil profile (maximum depth 15 mBGL) was investigated. At most shallow investigation and all deeper investigation locations, natural soil was encountered and sampled for inspection and description.

The overall depths of soil sampling and distribution of sampling locations was considered to be sufficient to characterise the site to determine extent of contamination impacts.

Due to access limitations and site occupation it was not possible to excavate test pits to sample fill sufficient for asbestos quantification using gravimetric (NEPC (2013) protocol).

Groundwater was investigated at three monitoring wells. This was considered sufficient to determine potentiometric slope, and required physicochemical and chemical parameters.

10. CONCLUSION

The site identified as 159-167 Darley Street West, Mona Vale, NSW was the subject of a DSI, conducted in order to assess the nature and degree of on-site contamination.

The key findings of this DSI were as follows:

- The site consisted of four free standing residential dwellings which occupied 5 adjoining lots. The dwellings on Lots 2, 3, 4 and 5 in DP11108 (159, 161 and 163-165 Darley Street West) where constructed before 1955. The dwelling on Lot 1 in DP11108 (167 Darley Street West) was constructed around 1975
- The site and surrounding area has been used for residential purposes since at least 1955, apart from Bayview Golf Club to the north and associated clubhouse to the north-east. Redevelopment of properties east of the site for higher density residential use occurred sometime between 1991 and 2005. There is commercial/industrial use within a 500m radius of the site.
- The site was free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site was not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- Site inspection found no visual evidence of gross contamination. No suspicious odours were detected during the site inspection, or during any of the field (sampling) works.
- There was no evidence that underground storage tanks (USTs) were present on the site. No above-ground storage tanks (ASTs) were identified.
- Fibre cement sheeting was observed in the garage of 161 Darley Street West.
- Access was not provided to the rear of 159 Darley Street West to perform soil sampling.
- The site lithology was generalised as a narrow layer of fill consisting of sandy clay, silty clay, clayey sand (to depth of 0.4mBGL), overlying residual sandy clay and sandstone bedrock (from 3.4 to 7.3mBGL).
- In accordance with the Pittwater Local Environmental Plan 2014, the site within a Class 5 area as such, acid sulfate soils are not expected to be present at the site. Intrusive investigation and assessment of acid sulfate soil parameters found that the soil was acidic however actual (AASS) and potential (PASS) acid sulfate soil was not present within the boundary of the site. Management of acid sulfate soil is not required.
- An assessment of the collected soil samples against adopted health-based criteria (NEPC, 2013) for the site area was conducted. All analytes met the adopted guidelines, with the exception of;
 - Asbestos detection in shallow fill samples BH112_0.00-0.10 (Chrysotile and Amosite asbestos found in approximately 20x10x5mm cement sheet fragment) and BH2M_0.10-0.20 (Chrysotile and Amosite asbestos found as approximately 5x5x2mm fibrous mass but below the laboratory reporting limit of 0.1g/kg).
- Groundwater was gauged at three monitoring wells and was found to be between 3.4 and 7.3 mBGL. The potentiometric slope was determined to be north towards Cahill Creek;
- Groundwater was observed to be turbid but free from odour or staining. The water was acidic, saline and oxidising.

- An assessment of the collected groundwater samples against the NEPC (2013) and ANZG (2018) criteria indicated the concentrations of priority metals exceeded adopted criteria at the following:
 - › Chromium (Cr) at BH3M
 - › Copper (Cu) at BH1M, BH2M and BH3M
 - › Nickel (Ni) at BH1M, BH2M and BH3M, and
 - › Zinc (Zn) at BH1M, BH2M and BH3M.
 - › Metal concentrations were consistent with natural (background) conditions in urban environments and there was no impact from in-situ soil material.
- The CSM developed for the site (**Section 4**) was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential onsite and offsite receptors. However some data gaps remained due to access restrictions:
 - › Soil sampling was not conducted within the footprints of existing residential buildings which were occupied at the time of investigation.
 - › Intrusive soil investigation was limited to grab sampling off auger. Further investigation for asbestos distribution in fill is required.

Based on the findings of this DSI and with due consideration of EI's Statement of Limitations (**Section 12**), it was concluded that the potential for site contamination is low, however minor asbestos occurrence was found in fill. Data gaps remain due to site access restrictions.

The site can be made suitable for the proposed development provided that the recommendations presented in **Section 11** are followed. Recommendations can be incorporated into the planning and consent process for the proposed development.

11. RECOMMENDATIONS

EI makes the following recommendations in relation to the proposed development:

- Preparation of a remediation action plan that includes the following:
 - After demolition of existing buildings, data gap investigation to assess soil for contaminants of potential concern within the footprints of existing buildings;
 - After demolition of existing buildings, data gap investigation to assess soil for asbestos quantification (gravimetric protocol according to NEPC 2013) by sampling from test pits across the site;
 - Development of remediation methodology for management of asbestos found in fill at locations BH2M and BH112, and asbestos or other contamination at locations identified upon completion of the data gap investigation;
 - Inclusion of an unexpected finds protocol (UFP) to manage, according to legislation and guidelines, previously unknown contamination sources (such as soil staining and odour, buried asbestos or underground storage tanks) should these be identified during site works;
- Remediation of asbestos found in fill at BH2M and BH112, and asbestos or other contamination identified at other locations following data gap investigation;
- Hazard materials assessment of existing buildings and preparation of a hazardous materials report. This will guide demolition of existing buildings and prevent uncontrolled distribution of hazardous materials during demolition;
- Preparation of an asbestos management plan for management of asbestos during demolition and subsequent soil remediation according to Work Health and Safety Regulation 2017;
- Waste classification of waste and surplus material (including potential virgin excavated natural material - VENM) to be removed from the site, in accordance with the NSW EPA (2014) Waste Classification Guidelines, Protection of the Environment Operations Act 1997, and Work Health and Safety Regulation 2017;
- Assessment of any soil/fill material imported onto the site. Imported soil must be classified as virgin excavated natural material (VENM) or have a classification certificate indicating that it is suitable for the proposed land use; and
- Preparation of a site validation report describing additional investigations, remediation and waste classification. The Site validation report shall provide a conclusion regarding suitability of the site for the proposed development.

EI notes that these recommendations can be managed through the development application process.

12. STATEMENT OF LIMITATIONS

This report has been prepared for the exclusive use of The Trustee for DREP1 Mona Vale Sub Trust, whom is the only intended beneficiary of EI's work. The scope of the investigation carried out for the purpose of this report was limited to that agreed with The Trustee for DREP1 Mona Vale Sub Trust.

No other party should rely on this 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.

The findings presented in this report are the result of discrete and specific sampling methodologies used in accordance with best industry practices and standards. Due to the site-specific nature of soil sampling from point locations, it is considered likely that all variations in subsurface conditions across a site cannot be fully defined, no matter how comprehensive the field program.

While normal assessments of data reliability have been made, EI assumes no responsibility or liability for errors in any data obtained from previous assessments conducted on site, regulatory agencies (e.g. Council, NSW EPA), statements from sources outside of EI, or developments resulting from situations outside the scope of works of this project.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events (e.g. groundwater movement and or spillages of contaminating substances). These changes may occur subsequent to EI's investigation.

EI's assessment is necessarily based upon the results of the site investigation and the restricted program of surface and subsurface sampling, screening and chemical testing which was set out in the project proposal. Neither EI, nor any other reputable consultant, can provide unqualified warranties nor does EI assume any liability for site conditions not observed or accessible during the time of the investigations.

This report was prepared for The Trustee for DREP1 Mona Vale Sub Trust and no responsibility is accepted for use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

This report and associated documents remain the property of EI subject to payment of all fees due for this assessment. The report shall not be reproduced except in full and with prior written permission by EI.

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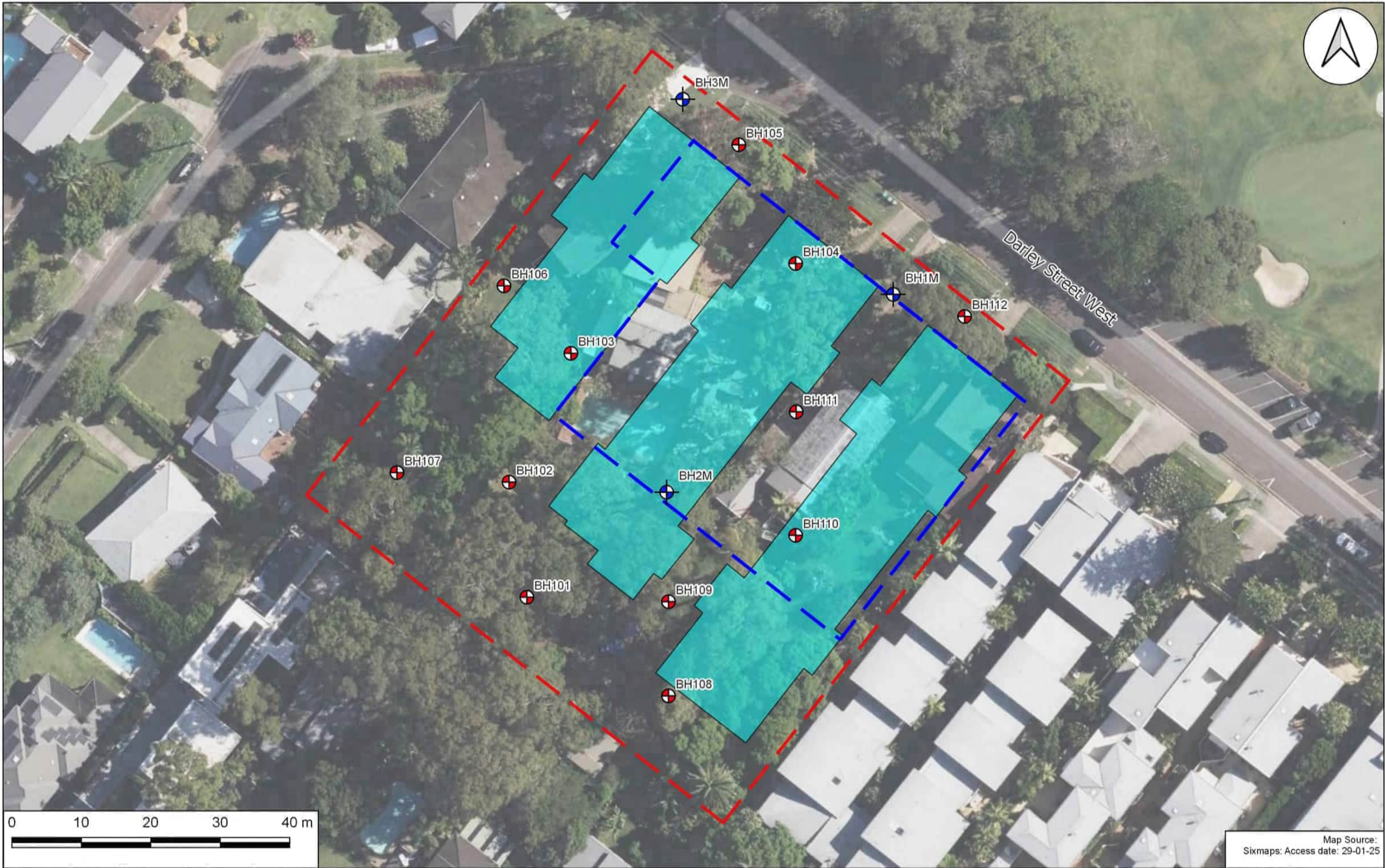
ABBREVIATIONS

ACM	Asbestos-Containing Materials
ANZG	Australian and New Zealand and Australian State and Territory Governments
AS	Australian Standard
ASS	Acid Sulfate Soils
AST	Above-Ground Storage Tank
B(a)P	Benzo(a)Pyrene (a polycyclic aromatic hydrocarbon compound)
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CBD	Central Business District
CLM	Contaminated Land Management
COC	Chain of Custody
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DA	Development Application
DBYD	Dial Before You Dig
DP	Deposited Plan
DQI	Data Quality Indicators
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
NSW EPA	Environment Protection Authority (of New South Wales)
ESL	Ecological Screening Level
F1	C ₆ -C ₁₀ TRH less sum of BTEX concentrations
F2	>C ₁₀ -C ₁₆ TRH less naphthalene
F3	>C ₁₆ -C ₃₄ TRH
F4	>C ₃₄ -C ₄₀ TRH
FCS	Fibre Cement Sheeting
HIL	Health-based Investigation Level
HM	Heavy Metals
HMS	Hazardous Materials Survey
HSL	Health-based Screening Level
km	Kilometres
LBP	Lead-Based Paint
LGA	Local Government Area
LOR	Limit of Reporting (of corresponding laboratory analytical method)
m	Metres
mAHD	metres Australian Height Datum
mBGL	metres Below Ground Level
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Litre
µg/L	Micrograms per Litre
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per- or Poly- Fluoroalkyl Substances
PID	Photo-Ionisation Detector
pH	Potential (a measure of the acidity or basicity of an aqueous solution)
ppm	Parts per Million

PQL	Practical Quantitation Limit (limit of detection for a given laboratory method)
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
SEPP	State Environmental Planning Policy
SIL	Soil Investigation Level
SP	Strata Plan
SRA	Sample Receipt Advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TCLP	Toxicity Characteristics Leaching Procedure
TEQ	Toxicity Equivalent Quotient
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 arithmetic mean)
UPSS	Underground Petroleum Storage System
US EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compounds (specific organic compounds which are volatile)



LEGEND Note: All locations are approximate Site Location	 Practical Solutions for Built Environments Suite 6.01, 55 Miller Street, PYRMONT 2009 Ph (02) 9516 0722 Fax (02) 9518 5088	Drawn:	M.C.	IPM Property Pty Ltd Detailed Site Investigation 159-167 Darley Street West, Mona Vale, NSW Site Locality Plan	Figure:
		Approved:			1
		Date:	28/01/2025		Project: E26489.E02



LEGEND		Note: All locations are approximate	
	Basement boundary		Borehole Location
	Site Boundary		Groundwater Monitoring Well Location
	Proposed building footprint		



Practical Solutions for Built Environments
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9518 0722 Fax (02) 9518 5088

Drawn:	M.C.
Approved:	
Date:	10/02/2025

IPM Property Pty Ltd
Detailed Site Investigation
159-167 Darley Street West, Mona Vale, NSW
Sampling Location Plan

Map Source: Sixmaps: Access date: 29-01-25
Figure: 2
Project: E26489.E02



LEGEND Note: Areas are approximate Site Boundary Basement boundary Borehole Locations (EI, 2025) GSW- Asbestos Area	eiaustralia Practical Solutions for Built Environments Suite 6.01, 55 Miller Street, PYRMONT 2009 Ph (02) 9516 0722 Fax (02) 9518 5088	Drawn:	L.H.	IPM Property Pty Ltd Detailed Site Investigaiton 159-167 Darley Steet West, Mona Vale NSW Preliminary Waste Classification Area	Figure:
		Approved:			3
		Date:	07/08/2025	Project:	
E26489.E02.Rev01					

Map Source: NSW SIXMaps, accessed 7/8/2025

Appendix B -Tables

Table T2 - Summary of Groundwater Analytical Results

Sample ID	Sampling Date	Metals								VOC		PAHs			BTEX					TRHs				Total VOC			
		As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Chloroform (THM)	Bromodichloromethane (THM)	Total PAHs	Benzo(a)pyrene	Naphthalene	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1	F2	F3	F4				
BH1M	14/1/2025	<1	0.1	2	24	<1	<0.1	29	89	2.5	0.5	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<1	<0.5	<50	<60	<500	<500	<10			
BH2M		<1	0.1	3	9	1	<0.1	66	81	1.3	<0.5	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<1	<0.5	<50	<60	<500	<500	<10			
BH3M		2	0.5	9	130	3	<0.1	180	230	<0.5	<0.5	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<1	<0.5	<50	<60	<500	<500	<10			
Statistical Analysis																											
Maximum Concentration		2	0.5	9	130	3	<PQL	180	230	2.5	0.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL			
Minimum Concentration		2	0.1	2	9	1	<PQL	29	81	1.3	0.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL			
GILs																											
HSL A & B - Low to high density residential Soil texture classification – Sand		2m to <4m												NL	800	NL	NL	NL	NL	1,000	1,000						
		4m to <8m												NL	800	NL	NL	NL	NL	1,000	1,000						
		8m+												NL	900	NL	NL	NL	NL	1,000	1,000						
HSL A & B - Low to high density residential Soil texture classification – CLAY		2m to <4m												NL	5,000	NL	NL	NL	NL	NL	NL						
		4m to <8m												NL	6,000	NL	NL	NL	NL	NL	NL						
		8m+												NL	6,000	NL	NL	NL	NL	NL	NL						
GILs	Marine Waters ¹		0.7 ²	27 (Cr III) 4.4 (Cr VI)	1.3	4.4	0.1 ²	7	8					50 ³	500 ³	180 ⁴	5 ⁴	350 ⁴	275 ⁴	50 ⁵	60 ⁵	500 ⁵	500 ⁵				
	Recreational Water ⁶	100	20		1,000 *	100	10	200	3,000*							10	25*	3*	20 *	20 *							
NJDEP - Screening Levels ⁷																	300										
PFAS - Freshwater ⁸																											

Notes:

	Highlighted indicates criteria exceeded
	Highlighted indicates criteria not met

All values are µg/L unless stated otherwise

HSL A & B NEPC 1999 Amendment 2013 'HSL A & B' Health Based Screening Levels for vapour intrusion applicable for low-high density residential settings.

NL Not Limiting

F1 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.

F2 To obtain F2 subtract naphthalene from the >C10-C16 fraction.

F3 (>C16-C34)

F4 (>C34-C40)

1 NEPM (2013) Groundwater Investigation Levels for fresh and marine water quality, based on ANZECC & ARMCANZ (2000)

2 Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZG (2018) for further guidance.

3 Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

4 Low reliability toxicity data, refer to ANZECC & ARMCANZ (2000)

5 In lack of a criteria the laboratory PQL has been used (DEC, 2007).

6 Based on NHMRC (2011 - update August 2018 v.3.5) Drinking Water Guidelines. The lowest of the Health Guideline x10 or the Aesthetic Guideline has been chosen as the assessment criteria. Aesthetic based criteria have been indicated by *

7 Value derived from the NJDEP vapour intrusion groundwater screening levels (GWSL)

8 Value derived from the National Environmental Management Plan for PFAS - 95% species protection for slightly to moderately disturbed systems.

9 The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.

Table 3 - Summary of Acid Sulfate Soil Analytical Results

Sample ID	Sampling Date	Soil type	pH Assessment				Lab pH		SPOCAS					Liming Rate (kg CaCO ₃ /t)	
			pH _F	pH _{FOX}	pH Difference (pH _F - pH _{FOX})	Reaction Rate (pHfox)	pH KCl	pH OX	TAA (moles H ⁺ /tonne)	TPA (moles H ⁺ /tonne)	TSA (moles H ⁺ /tonne)	S _{POS} (as %S)	Net Acidity (moles H ⁺ /tonne)		
Current Additional Site Investigation															
BH1M_0.50-0.60	3/12/2024	CLAY	7.5	6	1.4	2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH1M_1.00-1.10		CLAY	5.5	4.2	1.2	1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH1M_1.50-1.60		CLAY	6.6	4.9	1.7	2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH1M_2.00-2.10		CLAY	4.5	3.3	1.2	1	4.6	4.1	52	95	42	0.006	120	9	
BH1M_2.50-2.60		CLAY	4.3	3.3	1	1	4.6	4	65	82	17	0.006	120	9.2	
BH1M_3.00-3.10		CLAY	4.3	3.3	1	1	4.6	4.7	57	80	22	<0.005	110	8.5	
BH1M_3.50-3.60		CLAY	4.9	3.7	1.1	1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH1M_4.00-4.10		CLAY	4.9	3.3	1.6	1	4.7	5.3	42	65	22	0.006	89	6.7	
BH1M_4.50-4.60		CLAY	4.6	3.3	1.3	1	4.7	5	42	60	17	<0.005	85	6.4	
BH1M_5.00-5.10		CLAY	4.6	3.7	1	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH1M_5.50-5.60		CLAY	4.8	3.7	1.1	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH1M_6.00-6.10		CLAY	4.9	3.7	1.2	1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH2M_0.50-0.60		CLAY	7	4.8	2.2	3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH2M_1.00-1.10		CLAY	4.8	3.9	0.9	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH2M_1.50-1.60		CLAY	4.6	3.3	1.3	1	4.7	4.6	36	50	14	0.011	76	5.7	
BH2M_2.00-2.10		CLAY	4.6	3.3	1.2	1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
BH2M_2.50-2.60	CLAY	4.7	3.4	1.3	1	4.7	4.7	35	45	10	0.008	70	5.3		
Statistical Analysis															
Minimum			4.3	3.3	0.9	0.0	4.6	4.0	35.0	45.0	<5	0.006	70	5.3	
Maximum			7.5	6.0	2.2	3.0	4.7	5.3	65.0	95.0	42.0	0.011	120	9.2	
SILs															
ASSMAC (1998) Action Criteria	>1,000 tonnes fine textured soil disturbed									18	18	≥0.03			
	Indicator of AASS	≤ 4 actual ASS are present													
		>4 but <5.5 indicates acidic soil, but not confirmatory of actual ASS													
	Indicator of PASS		<3 and a strong reaction, indicates high probability of PASS.												
			>3 and ≤4, mild reaction requires lab analysis to confirm												
			>4 and ≤5, and no reaction requires lab analysis to confirm												
			>5 and little or no drop in pH, sulfur trail in SPOCAS applies.												
			>1 indicates PASS												

Notes:

NA = Not analysed
NR = No reference criterion available in current regulatory tools
SPOCAS = Suspension Peroxide Oxidation Combined Activity & Sulfur
Exceeding ASSMAC 1998 criteria

pH_F = Field pH
pH_{FOX} = Peroxide oxidised pH
pH_{KCl} = Potassium chloride pH

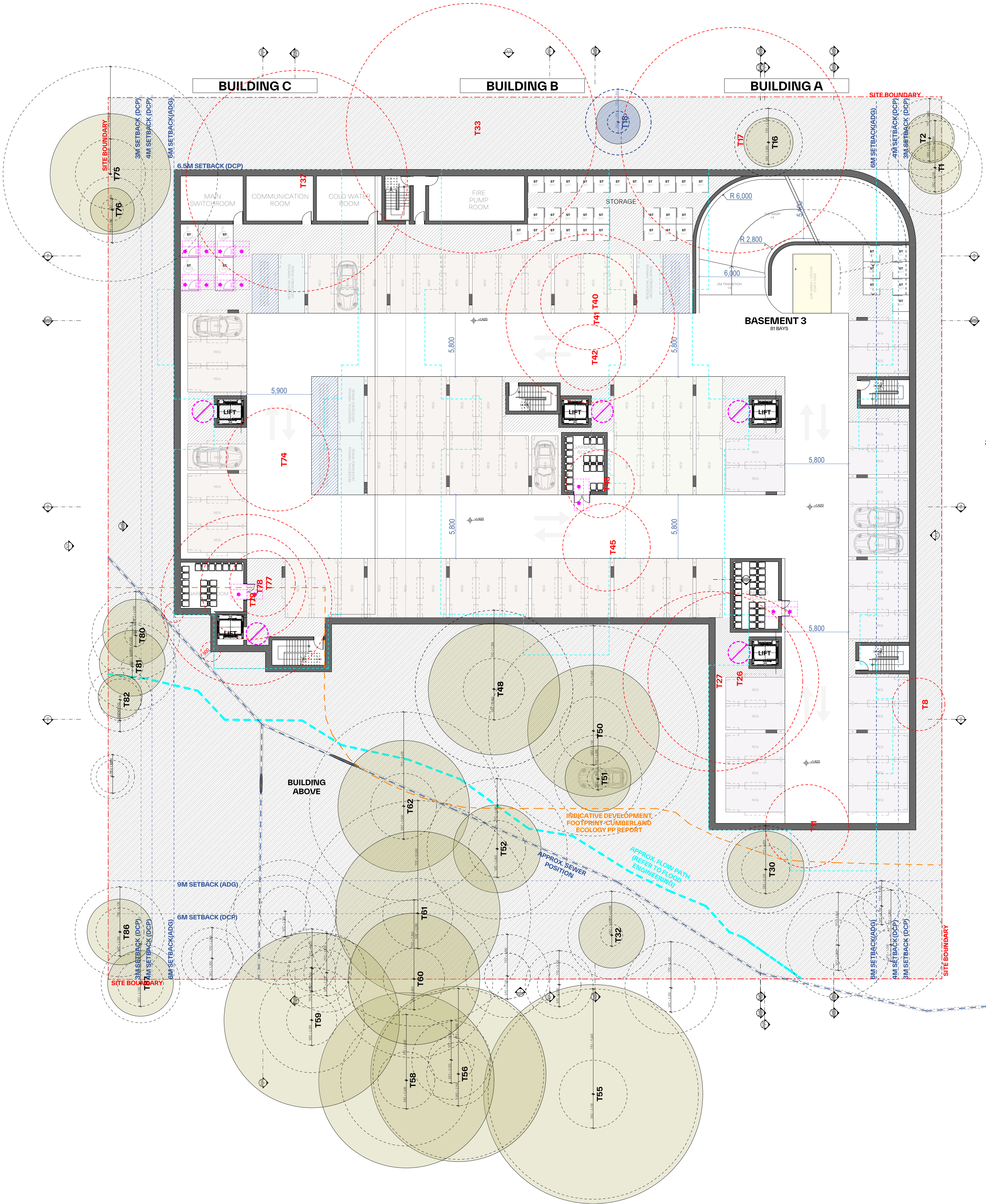
S_{Cr} = Chromium reducible sulfur
S_{POS} = Peroxide oxidisable sulfur

TAA = Titrable Actual Acidity
TPA = Titrable Peroxide Activity
TSA = Titrable Sulfidic Activity

Reaction Rate:
0 = No Reaction
1 = Slight Reaction
2 = Moderate Reaction
3 = Strong/High Reaction
4 = Extreme/Vigorous Reaction (gas evolution and heat generation)



Appendix C -Proposed Development Plans



GENERAL NOTES:

- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES / LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
- DRAWINGS FOR THE PURPOSES OF DA ONLY (NOT FOR CONSTRUCTION) - FURTHER CONSULTANT/ AUTHORITY COORDINATION WILL BE REQUIRED AT CC STAGE WHICH MAY IMPACT ON DESIGN AND PLANNING LAYOUTS
- ARCHITECTURAL PLANS TO BE READ IN CONJUNCTION WITH CONSULTANTS DRAWINGS, SPECIFICATIONS & REPORTS
- COPYRIGHT OF DESIGN SHOWN HEREON IS RETAINED BY PBD ARCHITECTS AND AUTHORITY IS REQUIRED FOR ANY REPRODUCTION
- AREA SCHEDULES SUPPLIED ARE APPROXIMATE ONLY - FUTURE ALLOWANCE FOR VERTICAL SERVICE DUCTS, STRUCTURAL WALL SYSTEMS AND CONSULTANT INPUT WILL BE REQUIRED

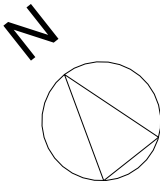
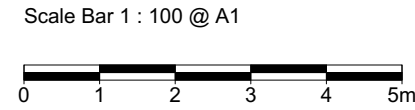
LEGEND:

AW AWNING
AH ACCESS HATCH
AC A/C CONDENSER UNITS
FH FIRE HYDRANT
FHR FIRE HOSE REEL
FS FIRE STAIRS
GC GARBAGE CHUTE
HWV HIGHLIGHT WINDOW
MV MECHANICAL RISER TO FUTURE DETAIL
MB MAIL BOX TO FUTURE DETAIL
R 240L RECYCLING BIN
SK SKYLIGHT
ST STORAGE
HWU HOT WATER UNITS

MATERIALS LEGEND:

AFG ALUMINIUM FRAMED GLAZING
LV ALUMINIUM ELLIPTICAL FIXED LOUVERS
AW AWNING (TO FUTURE DETAIL)
CONC CONCRETE
FB FACE BRICK
GB FRAMELESS TOUCHED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
MB METAL BALUSTRADE
MC METAL CLADDING
FCE METAL FENCING (TO FUTURE SELECTION)
PC COMPOSITE PANEL CLADDING
PSX PRIVACY SCREEN (TO FUTURE SELECTION)
PTX PAINT FINISH TYPEX
RD ROLLER DOOR
RP RIVER PEBBLES
RW RENDERED FINISH/SELECTED PAINT FINISH
TC TIMBER CLADDING
VB EXTERNAL VENETIAN BLINDS

Issue	Date	Description
P1	5/09/2025	ISSUE FOR COORDINATION



CLIENT:
IPM



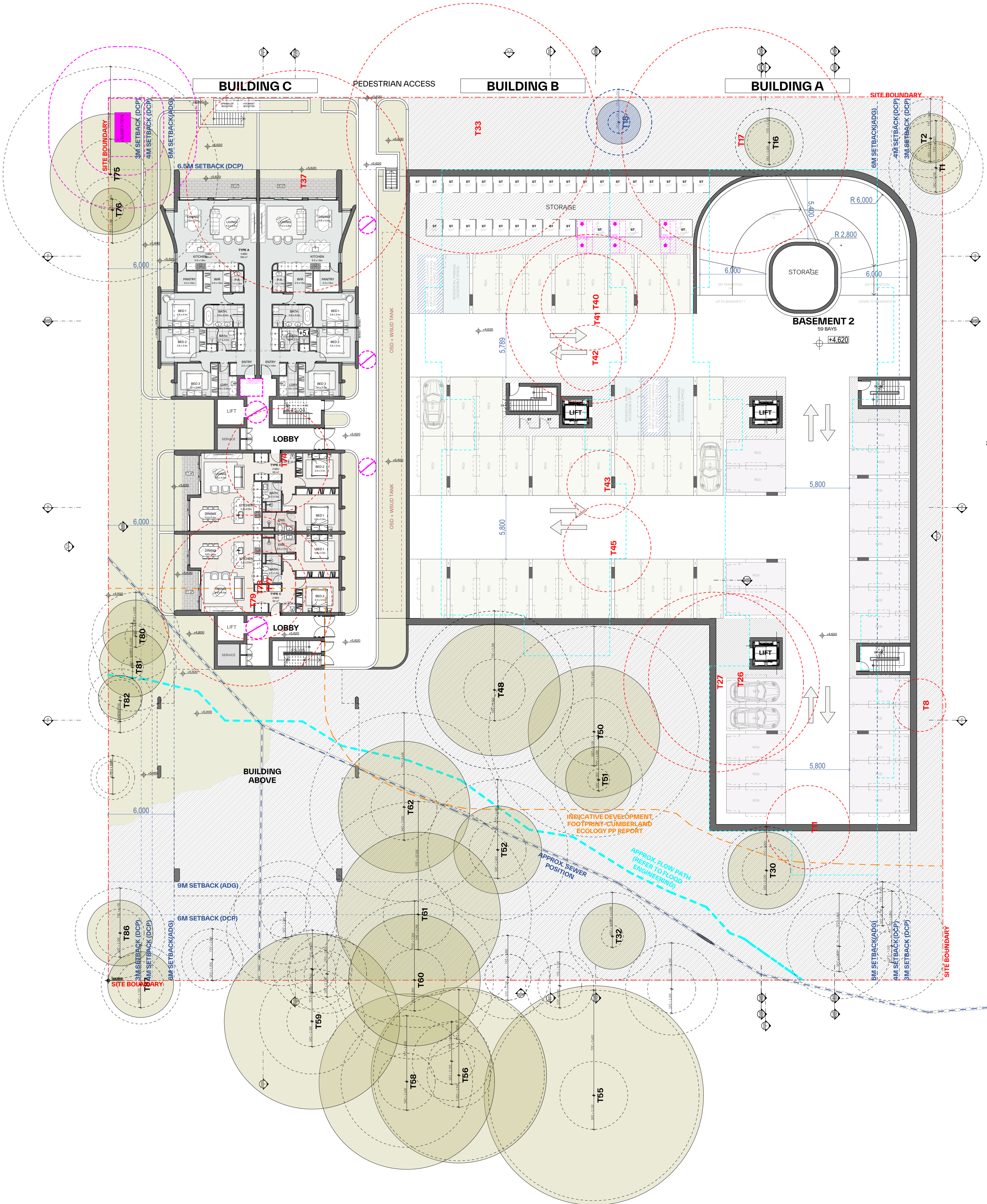
pbd
architects

P - 02 9698 8140
E - info@pbdarchitects.com.au
W - pbdarchitects.com.au
Level 2, 52 Albion Street,
Surry Hills NSW 2010
ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Residential Flat Building
159-165 DARLEY STREET WEST MONA
VALE NSW

DRAWING TITLE:
Lower Ground Floor

DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO: DA100	ISSUE: P1
PROJECT NO: 2435		

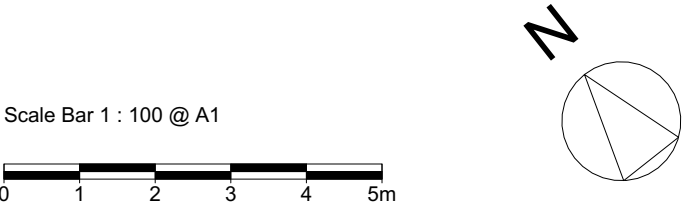


GENERAL NOTES:

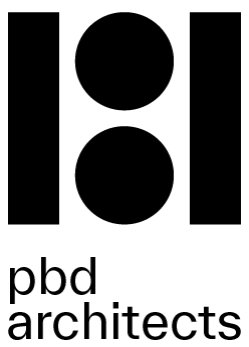
- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES / LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
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- LEGEND:**
- AW AWNING
 - AH ACCESS HATCH
 - AC A/C CONDENSER UNITS
 - FH FIRE HYDRANT
 - FHR FIRE HOSE REEL
 - FS FIRE STAIRS
 - GC GARBAGE CHUTE
 - HW HIGHLIGHT WINDOW
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 - MB METAL BALUSTRADE
 - MC METAL CLADDING
 - FCE METAL FENCING (TO FUTURE SELECTION)
 - PC COMPOSITE PANEL CLADDING
 - PSX PRIVACY SCREEN (TO FUTURE SELECTION)
 - PTX PAINT FINISH TYPEX
 - RD ROLLER DOOR
 - RP RIVER PEBBLES
 - RW RENDERED FINISH/SELECTED PAINT FINISH
 - TC TIMBER CLADDING
 - VB EXTERNAL VENETIAN BLINDS

Issue	Date	Description
P1	5/09/2025	ISSUE FOR COORDINATION



CLIENT:
IPM



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ABN 36 147 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
Residential Flat Building
159-165 DARLEY STREET WEST MONA
VALE NSW

DRAWING TITLE:
Ground Floor

DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO: DA101	ISSUE: P1
PROJECT NO: 2435		



1:200

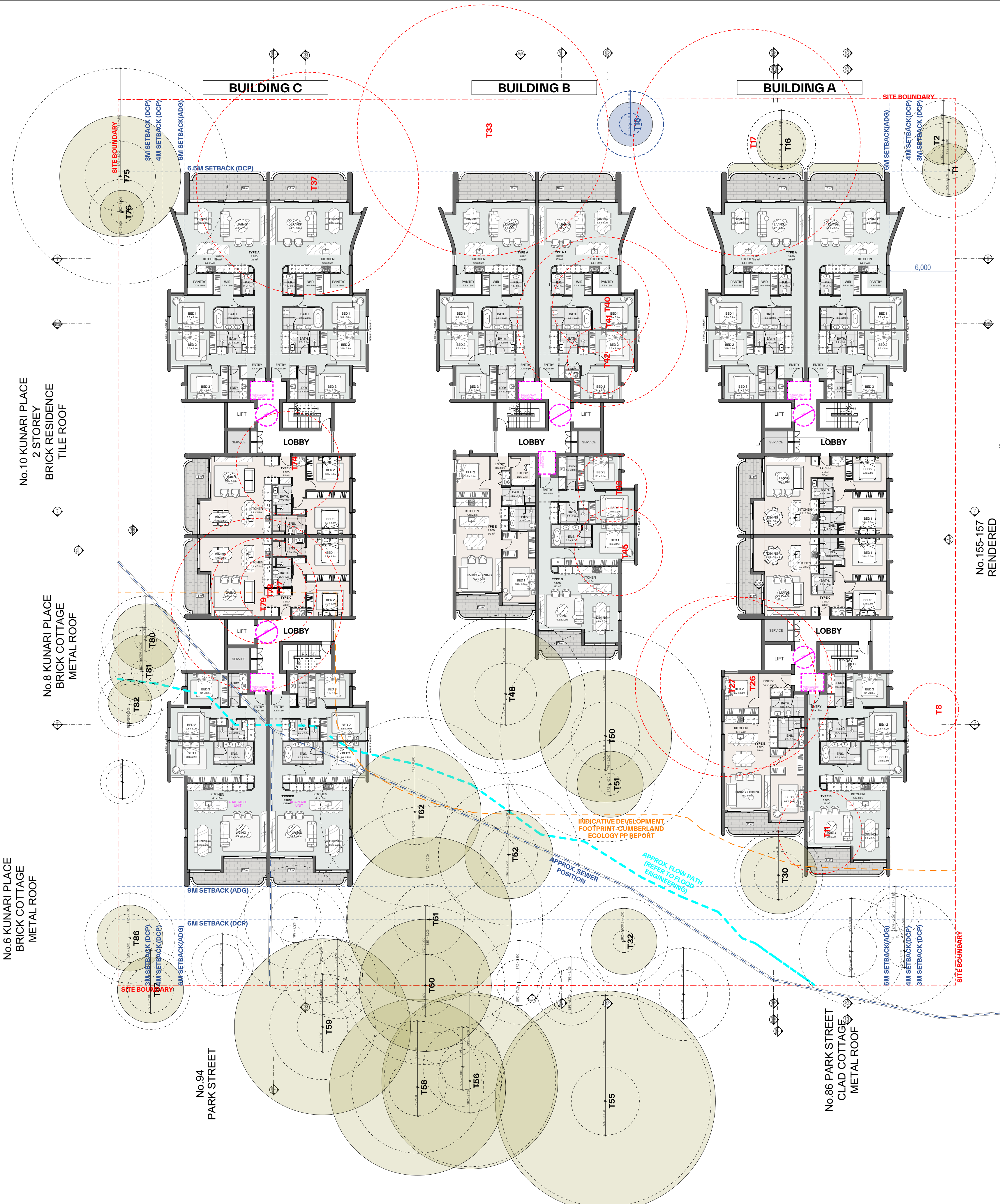
D1

P1



1:200

DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO:	ISSUE:
PROJECT NO: 2435	DA103	P1



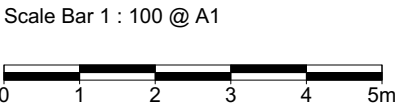
NEW TYPICAL PLAN

GENERAL NOTES:

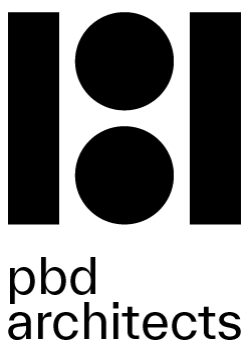
- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
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- LEGEND:
- AW AWNING
 - AH ACCESS HATCH
 - AC A/C CONDENSER UNITS
 - FH FIRE HYDRANT
 - FHR FIRE HOSE REEL
 - FS FIRE STAIRS
 - GC GARBAGE CHUTE
 - HW HIGHLIGHT WINDOW
 - MV MECHANICAL RISER TO FUTURE DETAIL
 - MB MAIL BOX TO FUTURE DETAIL
 - R 240L RECYCLING BIN
 - SK SKYLIGHT
 - ST STORAGE
 - HWU HOT WATER UNITS
- MATERIALS LEGEND:
- AFG ALUMINIUM FRAMED GLAZING
 - LV ALUMINIUM ELLIPTICAL FIXED LOUVERS
 - AW AWNING (TO FUTURE DETAIL)
 - CONC CONCRETE
 - FB FACE BRICK
 - GB FRAMELESS TOUCHED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
 - MB METAL BALUSTRADE
 - MC METAL CLADDING
 - FCE METAL FENCING (TO FUTURE SELECTION)
 - PC COMPOSITE PANEL CLADDING
 - PSX PRIVACY SCREEN (TO FUTURE SELECTION)
 - PTX PAINT FINISH TYPE X
 - RD ROLLER DOOR
 - RP RIVER PEBBLES
 - RW RENDERED FINISH/SELECTED PAINT FINISH
 - TC TIMBER CLADDING
 - VB EXTERNAL VENETIAN BLINDS

Issue	Date	Description
P1	5/09/2025	ISSUE FOR COORDINATION



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PROJECT:
Residential Flat Building
159-165 DARLEY STREET WEST MONA
VALE NSW

DRAWING TITLE:
Level 3

DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO: DA104	ISSUE: P1
PROJECT NO: 2435		

PRELIMINARY ISSUE

Level 4

1:200

GENERAL NOTES:

- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
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LEGEND:

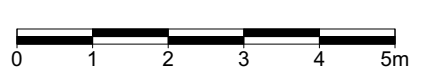
- | | |
|-----|-----------------------------------|
| AW | AWNING |
| AH | ACCESS HATCH |
| AC | A/C CONDENSER UNITS |
| FH | FIRE HYDRANT |
| FHR | FIRE HOSE REEL |
| FS | FIRE STAIRS |
| GC | GARBAGE CHUTE |
| HW | HIGHLIGHT WINDOW |
| MV | MECHANICAL RISER TO FUTURE DETAIL |
| MB | MAILBOX TO FUTURE DETAIL |
| R | 240L RECYCLING BIN |
| SK | SKYLIGHT |
| ST | STORAGE |
| HWU | HOT WATER UNITS |

MATERIALS LEGEND:

- | | |
|------|---|
| AF | ALUMINUM FRAMED GLAZING |
| LV | ALUMINUM ELLIPTICAL FIXED LOUVERS |
| AU | AWNING (TO FUTURE DETAIL) |
| CONC | CONCRETE |
| FB | FACE BRICK |
| GB | FRAMELESS TOUCHED GLOSS BALUSTRADE (TO BC&AU/STANDARDS) |
| MB | METAL BALUSTRADE |
| MC | METAL CLADDING |
| FC | METAL FENCING (TO FUTURE SELECTION) |
| PC | COMPOSITE PANEL CLADDING |
| PSH | PRIVACY SCREEN (TO FUTURE SELECTION) |
| PTX | PAINT FINISH TYPE |
| RD | ROLLER DOOR |
| RVP | RIVER PEBBLES |
| RW | RENDERED FINISH/SELECTED PAINT FINISH |
| TC | TIMBER CLADDING |
| VB | EXTERNAL VENETIAN BLINDS |

[illegible]

Scale Bar 1 : 100 @ A1



CLIENT:

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ABN 36 147 035 550
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PROJECT:

Residential Flat Building
159-165 DARLEY STREET WEST MONA
VALE NSW

DRAWING TITLE:

Level 4

DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO: DA105	ISSUE: P1
PROJECT NO: 2435		

PRELIMINARY ISSUE

Level 5

1:200

GENERAL NOTES:

- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
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LEGEND:

- | | |
|-----|-----------------------------------|
| AW | AWNING |
| AH | ACCESS HATCH |
| AC | A/C CONDENSER UNITS |
| FH | FIRE HYDRANT |
| FHR | FIRE HOSE REEL |
| FS | FIRE STAIRS |
| GC | GARBAGE CHUTE |
| HW | HIGHLIGHT WINDOW |
| MV | MECHANICAL RISER TO FUTURE DETAIL |
| MB | MAILBOX TO FUTURE DETAIL |
| R | 240L RECYCLING BIN |
| SK | SKYLIGHT |
| ST | STORAGE |
| HWU | HOT WATER UNITS |

MATERIALS LEGEND:

- | | |
|------|---|
| AF | ALUMINUM FRAMED GLAZING |
| LV | ALUMINUM ELLIPTICAL FIXED LOUVERS |
| AU | AWNING (TO FUTURE DETAIL) |
| CONC | CONCRETE |
| FB | FACE BRICK |
| GB | FRAMELESS TOUCHED GLOSS BALUSTRADE (TO BC&AU/STANDARDS) |
| MB | METAL BALUSTRADE |
| MC | METAL CLADDING |
| FC | METAL FENCING (TO FUTURE SELECTION) |
| PC | COMPOSITE PANEL CLADDING |
| PSH | PRIVACY SCREEN (TO FUTURE SELECTION) |
| PTX | PAINT FINISH TYPE |
| RD | ROLLER DOOR |
| RVP | RIVER PEBBLES |
| RW | RENDERED FINISH/SELECTED PAINT FINISH |
| TC | TIMBER CLADDING |
| VB | EXTERNAL VENETIAN BLINDS |

[illegible]

Scale Bar 1 : 100 @ A1



CLIENT:

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PROJECT:

Residential Flat Building
159-165 DARLEY STREET WEST MONA
VALE NSW

DRAWING TITLE:

Level 5

DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO:	ISSUE:
PROJECT NO: 2435	DA106	P1



1:200

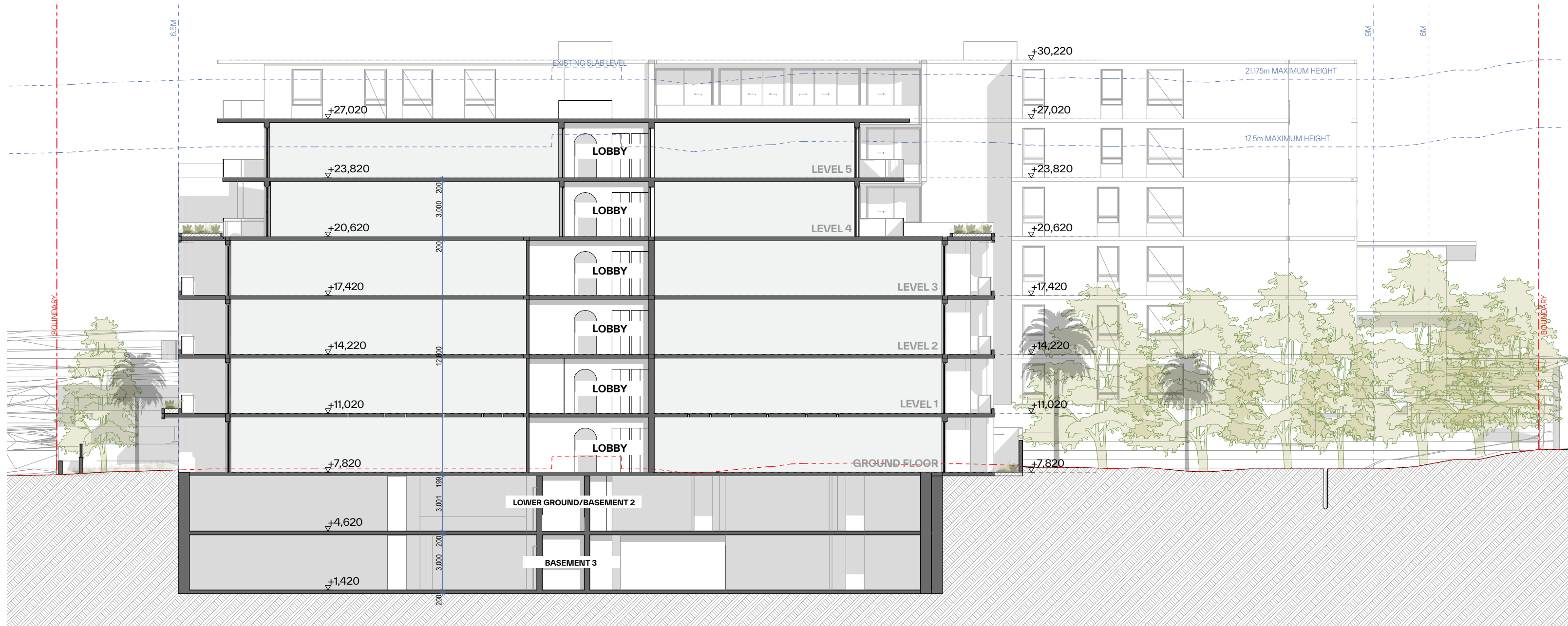
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DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO:	ISSUE:
PROJECT NO: 2435	DA107	P1



1:200

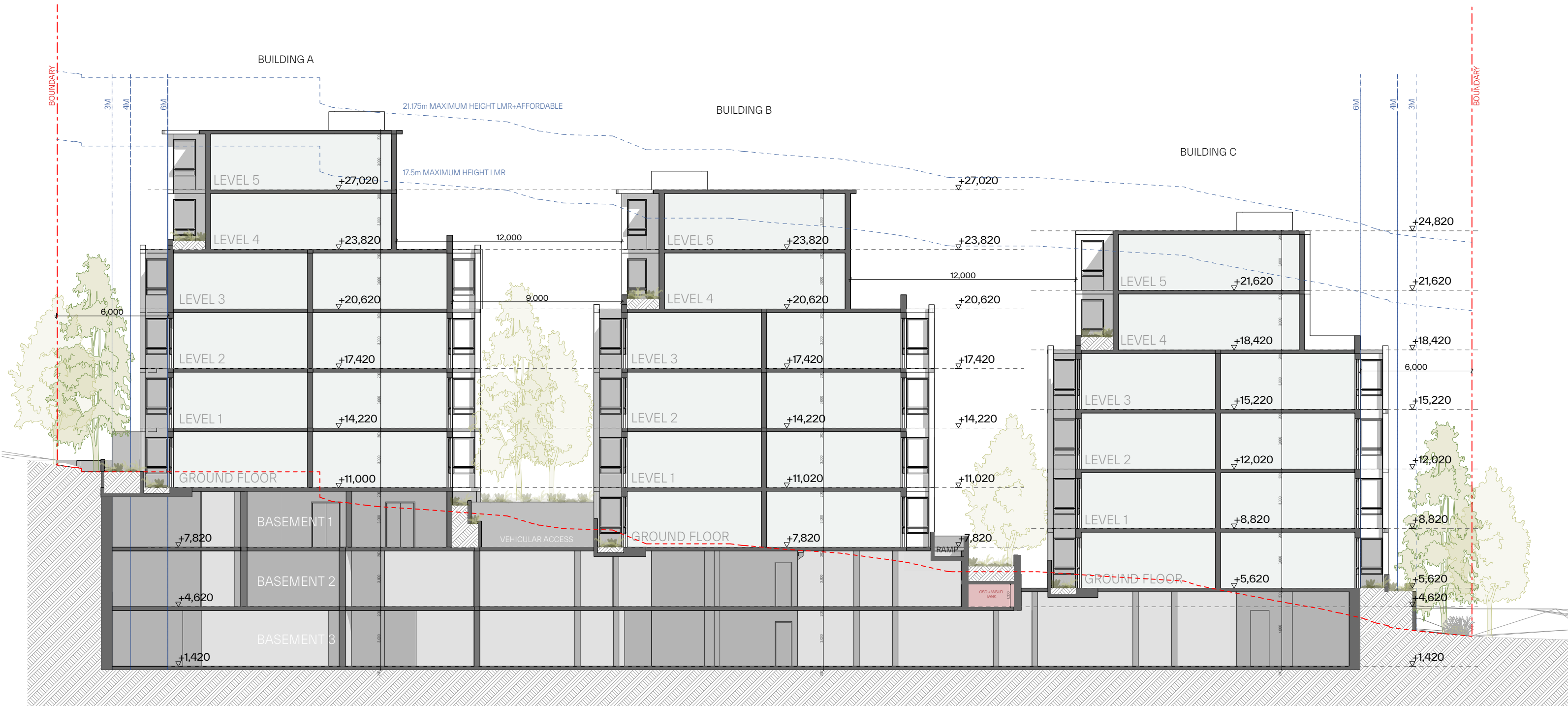
P1



1

LONG SECTION 2

1:200



2

Section

1:200

GENERAL NOTES:

- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
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LEGEND:

- AW AWNING
- AH ACCESS HATCH
- AC A/C CONDENSER UNITS
- FH FIRE HYDRANT
- FHR FIRE HOSE REEL
- FS FIRE STAIRS
- GC GARBAGE CHUTE
- HW HIGHLIGHT WINDOW
- MV MECHANICAL RISER TO FUTURE DETAIL
- MB MAIL BOX TO FUTURE DETAIL
- R 240L RECYCLING BIN
- SK SKYLIGHT
- ST STORAGE
- HWU HOT WATER UNITS

MATERIALS LEGEND:

- AFG ALUMINIUM FRAMED GLAZING
- LV ALUMINIUM ELLIPTICAL FIXED LOUVERS
- AW AWNING (TO FUTURE DETAIL)
- CONC CONCRETE
- FB FACE BRICK
- GB FRAMELESS TOUCHED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
- MB METAL BALUSTRADE
- MC METAL CLADDING
- FCE METAL FENCING (TO FUTURE SELECTION)
- PC COMPOSITE PANEL CLADDING
- PSX PRIVACY SCREEN (TO FUTURE SELECTION)
- PTX PAINT FINISH TYPE X
- RD ROLLER DOOR
- RP RIVER PEBBLES
- RW RENDERED FINISH/SELECTED PAINT FINISH
- TC TIMBER CLADDING
- VB EXTERNAL VENETIAN BLINDS

Issue	Date	Description
P1	5/09/2025	ISSUE FOR COORDINATION

Scale Bar 1 : 100 @ A1

CLIENT:

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PROJECT:

Residential Flat Building
159-165 DARLEY STREET WEST MONA
VALE NSW

DRAWING TITLE:

Section Sheet 2

DRAWING BY: CAD Technician AK	CHECKED BY: Checked by GR	DATE: 5/09/2025
SCALE: 1:200@A1	DRAWING NO: DA301	ISSUE: P1
PROJECT NO: 2435		

Appendix D -Site Photographs



Photograph 1: Front view of 163-165 Darley Street West (2/12/2024).



Photograph 2: Possible derelict shed at the southern portion of the site identified as a source of potential ACM (2/12/2024).



Photograph 3: Visual of Fibre Cement Sheetting located in garage of 161 Darley Street West (2/12/2024).



Photograph 4: Front view of 159 Darley Street West (2/12/2024).



Photograph 5: Backyard accessible soil area of 163-165 Darley Street West (2/12/24)



Photograph 6: Backyard shed located at 163-165 Darley Street West (2/12/24) .



Photograph 7: View of 167 Darley Street West accessible soil area, facing north east (2/12/24).



Photograph 8: View of frontage at 161 Darley Street West (2/12/24).



Photograph 9: View of frontage at 167 Darley Street West (2/12/24)



Photograph 10: View of southern backyard accessible soils at 167 Darley Street West (2/12/24)



Photograph 11: View of soil material at BH2M during drilling (2/12/24)



Photograph 12: View of accessible soils at Lot 2 in DP11108 (163-165 Darley Street West (2/12/24)

Appendix E -Borehole Logs



BOREHOLE LOG

BH ID: BH101

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH
Sheets	1 of 1	Review By	Date

Drilling Contractor		-	Surface RL		-	Latitude		-		
Plant		hand augur	Inclination		90°	Longitude		-		
METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH101_0.10-0.20		0.00			FILL: Silty SAND: fine grained, grey, trace rootlets, brick pieces, No odour			FILL
		BH101_0.30-0.40		0.30			FILL: Clayey SAND: fine grained, pale brown, with medium grained sub-rounded gravels. No odour			RESIDUAL SOIL
		BH101_0.60-0.70		0.40			Sandy CLAY: low to medium plasticity, yellow / pale brown, No odour			
					Terminated at 0.70m. Target Depth Reached.					
				1						
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH102

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247579.2260 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214730.3378 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH102_0.20-0.30		0.00			FILL: Silty SAND: fine grained, grey, trace rootlets, brick pieces, No odour			FILL
							Terminated at 0.30m. Refusal on obstruction.			
				1						
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

BOREHOLE LOG

BH ID: BH103

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH Date
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247607.6961 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214724.5769 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH103_0.20-0.30		0.00			FILL: Clayey SAND: fine grained, brown, trace rootlets, gravels, No odour			FILL
		BH103_0.70-0.80		0.60			Clayey SAND: medium to coarse grained, dark grey, trace rootlets, No odour			RESIDUAL SOIL
				1			Terminated at 0.80m. Target Depth Reached.			
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH104

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247622.4456 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214674.9885 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH104_0.20-0.30		0.00			FILL: Silty SAND: fine grained, brown/grey, with clay, trace rootlets,, No odour			FILL
		BH104_0.70-0.80		0.40			Clayey SAND: medium to coarse grained, dark grey, trace rootlets, medium grained sub-rounded gravels, No odour			RESIDUAL SOIL
				1			Terminated at 0.80m. Target Depth Reached.			
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH105

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247592.6779 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214706.2660 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH105_0.20-0.30		0.00			FILL: Sandy GRAVEL: fine to medium grained sub-angular gravels, brown/ grey, No odour			FILL
				0.20			FILL: Gravelly SAND: medium to coarse grained, dark brown / grey, No odour			
		BH105_0.70-0.80		0.40			Clayey SAND: medium to coarse grained, dark grey, trace rootlets, medium grained sub-rounded gravels, No odour			RESIDUAL SOIL
							Terminated at 0.80m. Target Depth Reached.			
				1						
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH106

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247626.5910 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214727.5932 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH106_0.20-0.30		0.00			FILL: Silty SAND: fine grained, brown/grey, with clay, trace rootlets, gravels, No odour			FILL
		BH106_0.70-0.80		0.40			Clayey SAND: medium to coarse grained, dark brown / grey, with sandstone gravels, No odour			RESIDUAL SOIL
				1			Terminated at 0.80m. Target Depth Reached.			
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

BOREHOLE LOG

BH ID: BH107

Location 159-167 Darley Street West, Mona Vale NSW
Client IPM Property Pty Ltd
Job No. E26489.G03
Sheets 1 of 1

Started 02 December 2024
Completed 02 December 2024
Logged By LH **Date**
Review By **Date**

Drilling Contractor - **Surface RL** - **Northing** 6247578.3935 (MGA 2020 Zone 56)
Plant hand augur **Inclination** 90° **Easting** -214739.9484 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH107_0.20-0.30		0.00			FILL: Silty SAND: fine grained, brown/grey, with clay, trace rootlets, gravels			FILL
				0.10			FILL: Gravelly SAND: fine to medium grained, grey, with sub angular cobbles and roots, No odour			
		BH107_0.70-0.80		0.50			Sandy CLAY: low to medium plasticity, yellow / pale brown, No odour			RESIDUAL SOIL
				1			Terminated at 0.80m. Target Depth Reached.			
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH108

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247573.1555 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214701.4720 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH108_0.00-0.10		0.00			FILL: Silty SAND: fine grained, grey, trace rootlets, No odour			FILL
		BH108_0.30-0.40		0.10			FILL: Gravelly SAND: fine to medium grained, grey, with sub angular cobbles and tiles piece, No odour			
							Terminated at 0.50m. Refusal in fill.			
				1						
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH110

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247613.7387 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214672.3338 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH110_0.30-0.40		0.00			FILL: Silty SAND: fine grained, brown, trace rootlets, No odour			FILL
				0.10			FILL: Gravelly SAND: fine to medium grained, grey, with sub angular gravels and cobbles, No odour			
							Terminated at 0.40m. Refusal in fill.			
				1						
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH111

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024
Client	IPM Property Pty Ltd	Completed	02 December 2024
Job No.	E26489.G03	Logged By	LH Date
Sheets	1 of 1	Review By	Date

Drilling Contractor	-	Surface RL	-	Northing	6247603.0111 (MGA 2020 Zone 56)
Plant	hand augur	Inclination	90°	Easting	-214684.8416 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH111_0.10-0.20		0.00			FILL: Silty SAND: fine grained, dark brown, with gravels, and plastic, trace rootlets, No odour			FILL
		BH111_0.40-0.50		0.30			SAND: fine to medium grained, dark brown / grey, trace rootlets			RESIDUAL SOIL
							Terminated at 0.50m. Refusal on obstruction.			
				1						
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

BOREHOLE LOG

BH ID: BH112

Location 159-167 Darley Street West, Mona Vale NSW
Client IPM Property Pty Ltd
Job No. E26489.G03
Sheets 1 of 1

Started 02 December 2024
Completed 02 December 2024
Logged By LH **Date**
Review By **Date**

Drilling Contractor - **Surface RL** - **Northing** 6247608.7397 (MGA 2020 Zone 56)
Plant hand augur **Inclination** 90° **Easting** -214665.4387 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
		BH112_0.00-0.10		0.00			TOPSOIL: Silty SAND: fine grained, dark brown, trace rootlets, No odour			TOPSOIL
				0.10			Clayey SAND: fine grained, brown/grey, trace rootlets, iron stone gravels, No odour			RESIDUAL SOIL
		BH112_0.50-0.60		0.50			SAND: medium to coarse grained, pale grey, with extremely weathered sandstone, No odour Terminated at 0.60m. Target Depth Reached.			
				1						
				2						
				3						
				4						
				5						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

BOREHOLE LOG

BH ID: BH1M

Location 159-167 Darley Street West, Mona Vale NSW
Client IPM Property Pty Ltd
Job No. E26489.G03
Sheets 1 of 3

Started 03 December 2024
Completed 03 December 2024
Logged By JO **Date** 03 December 2024
Review By **Date**

Drilling Contractor Stratacore **Surface RL** - **Northing** 6247607.6602 (MGA 2020 Zone 56)
Plant Massena M13 **Inclination** 90° **Easting** -214666.8546 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH1M_0.10-0.20		0.00			FILL: Silty SAND: fine to medium grained, dark brown trace rootlets with angular to sub-angular gravels	M	-	FILL
		BH1M_0.50-0.60 BH1M_0.50-0.95 SPT 0.50-0.95 7,12,12 N=24 BH1M_1.00-1.10		0.50			Silty CLAY: medium plasticity, brown-red		VSt	RESIDUAL SOIL
		BH1M_1.50-1.60 BH1M_1.50-1.93 SPT 1.50-1.93 10,15,18/130 mm HB N=R BH1M_2.00-2.10		1.95			Silty CLAY: medium plasticity, grey-brown	M = PL	-	
		BH1M_2.50-2.60								
		BH1M_3.00-3.10 BH1M_3.00-3.45 SPT 3.00-3.45 6,12,12 N=24 BH1M_3.50-3.60 BH1M_3.50-3.60		3						WEATHERED ROCK
		BH1M_4.00-4.10		4					VSt - H	
		BH1M_4.50-4.60 BH1M_4.50-4.95 SPT 4.50-4.95 14,24,24 N=48 BH1M_5.00-5.10		4.80			Sandy CLAY: low to medium plasticity, red-orange	M < PL		
		BH1M_5.50-5.60		5						
		BH1M_6.00-6.10 BH1M_6.00-6.22 SPT 6.00-6.22 7,8/75 mm HB N=R BH1M_6.50-6.60		6					-	
		BH1M_6.90-7.00 SPT 6.90-7.00 5/100 mm HB N=R		7						
				7.32			Log continued on next page.			
				8						
				9						
				10						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE CORE LOG

BH ID: BH1M

Location	159-167 Darley Street West, Mona Vale NSW	Started	03 December 2024		
Client	IPM Property Pty Ltd	Completed	03 December 2024		
Job No.	E26489.G03	Logged By	JO	Date	03 December 2024
Sheets	2 of 3	Review By		Date	

Drilling Contractor	Stratacore	Surface RL	-	Northing	6247607.6602 (MGA 2020 Zone 56)
Plant	Massena M13	Inclination	90°	Easting	-214666.8546 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0			Log continued from previous page.		VL 0-1 L 0-3 M 1 H 3 VH 10 EH		30 100 300 1000 3000
				1							
				2							
				3							
				4							
				5							
				6							
				7							
				8			SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded with ironstaining	xw		7.64: JT 60° PR SM Clay VN 7.80-7.93: XWZ 8.10: JT 5° PR SM Clay VN 8.50-8.53: CS 8.74: JT 80° PR SM Clay VN 8.89-9.08: CS	
	60%	100	44	9			NO CORE: 750mm thick	-			
				9.08							
				9.83			SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded with ironstaining				
				10							

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE CORE LOG

BH ID: BH1M

Location	159-167 Darley Street West, Mona Vale NSW	Started	03 December 2024		
Client	IPM Property Pty Ltd	Completed	03 December 2024		
Job No.	E26489.G03	Logged By	JO	Date	03 December 2024
Sheets	3 of 3	Review By		Date	

Drilling Contractor	Stratacore	Surface RL	-	Northing	6247607.6602 (MGA 2020 Zone 56)
Plant	Massena M13	Inclination	90°	Easting	-214666.8546 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
									VL 0-1 L 0-3 M 1 H 3 VH 10 EH		30 100 300 1000 3000
NMLC	60%	68	13	11			SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded with ironstaining	-		10.20: JT 60° PR SM CN 10.35: JT 45° PR SM CN 10.48: JT 30° PR SM CN 10.50: JT 70° PR SM CN 10.83-11.00: CZ 11.00-11.39: CZ	
		77	77	11.39 11.53			NO CORE: 140mm thick SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded	-			
		97	48	12				DW		12.21-12.25: CS 12.58-12.73: CZ 12.82: JT 90° PR SM CN 13.10: JT 90° PR SM CN 13.71-13.75: CS 14.15: JT 20° PR SM CN 14.33-14.50: CZ	
		100	100	14.54 14.61			NO CORE: 70mm thick SANDSTONE: fine to medium grained, grey-brown, medium bedded	DW			
				15			Terminated at 15.00m. Target depth reached.				
				16							
				17							
				18							
				19							
				20							

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

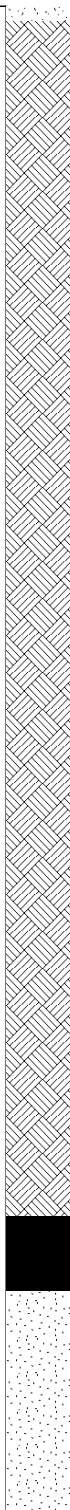
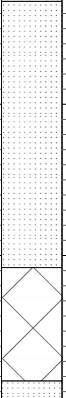
MONITORING WELL LOG

BH ID: BH1M

Location 159-167 Darley Street West, Mona Vale NSW
Client IPM Property Pty Ltd
Job No. E26489.G03
Sheets 1 of 2

Started 03 December 2024
Completed 03 December 2024
Logged By JO **Date** 03 December 2024
Review By **Date**

Drilling Contractor Stratacore **Surface RL** - **Northing** 6247607.6602 (MGA 2020 Zone 56)
Plant Massena M13 **Inclination** 90° **Easting** -214666.8546 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS		
GWNE	BH1M_0.10-0.20	0.00		-	FILL: Silty SAND: fine to medium grained, dark brown trace rootlets with angular to sub-angular gravels	M	Grout 0.00m - 0.10m	Well Stickup =0.0m		
	BH1M_0.50-0.60 BH1M_0.50-0.95 SPT 0.50-0.95 7,12,12 N=24 BH1M_1.00-1.10	0.50			Silty CLAY: medium plasticity, brown-red	M ≈ PL				
	BH1M_1.50-1.60 BH1M_1.50-1.93 SPT 1.50-1.93 10,15,18/130 mm HB N=R BH1M_2.00-2.10	1.00			Silty CLAY: medium plasticity, grey-brown					
	BH1M_2.50-2.60	1.95								
	BH1M_3.00-3.10 BH1M_3.00-3.45 SPT 3.00-3.45 6,12,12 N=24 BH1M_3.50-3.60 BH1M_3.50-3.60	3.00				M < PL				
	BH1M_4.00-4.10	4.00								
	BH1M_4.50-4.60 BH1M_4.50-4.95 SPT 4.50-4.95 14,24,24 N=48 BH1M_5.00-5.10	4.80			Sandy CLAY: low to medium plasticity, red-orange	M < PL				
	BH1M_5.50-5.60	5.00								
	BH1M_6.00-6.10 BH1M_6.00-6.22 SPT 6.00-6.22 7,8/75 mm HB N=R BH1M_6.50-6.60	6.00								
	BH1M_6.90-7.00 SPT 6.90-7.00 5/100 mm HB N=R	7.00								
60%		7.32		-	SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded with ironstaining					
		8.00								
		9.08			NO CORE: 750mm thick					
		9.83		-	SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded with ironstaining					

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

MONITORING WELL LOG

BH ID: BH1M

Location	159-167 Darley Street West, Mona Vale NSW	Started	03 December 2024		
Client	IPM Property Pty Ltd	Completed	03 December 2024		
Job No.	E26489.G03	Logged By	JO	Date	03 December 2024
Sheets	2 of 2	Review By		Date	

Drilling Contractor	Stratacore	Surface RL	-	Northing	6247607.6602 (MGA 2020 Zone 56)
Plant	Massena M13	Inclination	90°	Easting	-214666.8546 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
60%		11			SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded with ironstaining			
		11.39			NO CORE: 140mm thick			
		11.53			SANDSTONE: fine to medium grained, pale grey-brown, thinly bedded			
		12						
		13						
		14						
		14.54			NO CORE: 70mm thick			
		14.61			SANDSTONE: fine to medium grained, grey-brown, medium bedded			
		15			Terminated at 15.00m. Target depth reached.			
		16						
		17						
		18						
		19						
		20						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH2M

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024		
Client	IPM Property Pty Ltd	Completed	02 December 2024		
Job No.	E26489.G03	Logged By	JO/LH	Date	02 December 2024
Sheets	1 of 3	Review By		Date	

Drilling Contractor	Stratacore	Surface RL	-	Northing	6247595.0205 (MGA 2020 Zone 56)
Plant	Massena M13	Inclination	90°	Easting	-214710.0900 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH2M_0.10-0.20		0.00			FILL: Silty SAND: fine to medium grained, dark brown with rootlets and gravels	-	-	FILL
		BH2M_0.50-0.60 BH2M_0.50-0.95 SPT 0.50-0.95 4,8,7 N=15 BH2M_1.00-1.10		0.50 1			Silty CLAY: medium plasticity, orange-brown	M < PL	St	RESIDUAL SOIL
		BH2M_1.50-1.60 BH2M_1.50-1.95 SPT 1.50-1.95 9,15,17 N=32 BH2M_2.00-2.10		1.50 2			Silty CLAY: medium plasticity, pale grey		VSt	
		BH2M_2.50-2.60		2						
		BH2M_3.00-3.10 BH2M_3.00-3.17 SPT 3.00-3.17 16,7/20 mm HB N=R		3 3.15			Sandy CLAY: low plasticity, red, sand is fine to medium grained trace sandstone fragments	-	-	WEATHERED ROCK
				3.42			Log continued on next page.			
				4						
				5						
				6						
				7						
				8						
				9						
				10						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE CORE LOG

BH ID: BH2M

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024		
Client	IPM Property Pty Ltd	Completed	02 December 2024		
Job No.	E26489.G03	Logged By	JO/LH	Date	02 December 2024
Sheets	2 of 3	Review By		Date	

Drilling Contractor	Stratacore	Surface RL	-	Northing	6247595.0205 (MGA 2020 Zone 56)
Plant	Massena M13	Inclination	90°	Easting	-214710.0900 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0			Log continued from previous page.		VL 0-1 L 0-3 M 1 H 3 VH 10 EH		30 100 300 1000 3000
				1							
				2							
				3							
				4			SANDSTONE: fine to medium grained, pale grey-red, very thinky bedded, with ironstone bands			3.58: JT 45° PR SM Clay Infilled 3.85-6.95: XWZ 4.12: JT 45° PR SM Clay Infilled	
		100	45	5				XW		5.18: JT 30° PR SM Clay Infilled	
				6							
				6.90			NO CORE: 1280mm thick				
		54	39	7							
				8							
				8.18			SANDSTONE: fine to medium grained, pale grey-brown, very thinly bedded with ironstainjng	DW		8.18-8.30: XWZ 8.56-8.68: XWZ	
				9.00			NO CORE: 380mm thick				
		77	12	9.38			SANDSTONE: fine to medium grained, pale grey-brown, very thinly bedded with ironstainjng			9.60-9.68: CS 9.82-10.20: CZ	
				10							

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE CORE LOG

BH ID: BH2M

Location159-167 Darley Street West, Mona Vale NSW

ClientIPM Property Pty Ltd

Job No.E26489.G03

Sheets3 of 3

Started02 December 2024

Completed02 December 2024

Logged ByJO/LH

Date02 December 2024

Review By

Date

Drilling ContractorStratacore

Surface RL-

Northing6247595.0205 (MGA 2020 Zone 56)

PlantMassena M13

Inclination90°

Easting-214710.0900 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50)							DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING			
									VL	L	M	H	VH	EH	30		100	300	1000	3000
	60%	81	59	10.64			SANDSTONE: fine to medium grained, pale grey-brown, very thinly bedded with ironstaining	DW							10.20: JT 50° PR SM Clay Infilled					
												10.44: JT 15° CU SM Clay CN								
		100	70	11.21			SANDSTONE: fine to medium grained, pale grey, thinly bedded with ironstaining								11.32: JT 15° CU SM CN					
				12				DW							12.15: JT 25° PR SM CN					
				13											12.86-12.94: XWS					
				14											13.20-13.28: CS					
				15			Terminated at 14.00m. Target Depth Reached.													
				16																
				17																
				18																
				19																
				20																

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

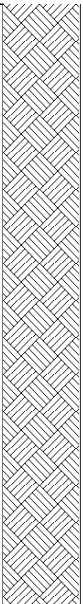
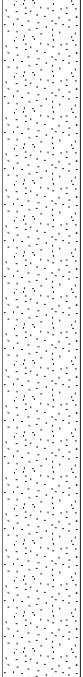


MONITORING WELL LOG

BH ID: BH2M

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024		
Client	IPM Property Pty Ltd	Completed	02 December 2024		
Job No.	E26489.G03	Logged By	JO/LH	Date	02 December 2024
Sheets	1 of 2	Review By		Date	

Drilling Contractor	Stratacore	Surface RL	-	Northing	6247595.0205 (MGA 2020 Zone 56)
Plant	Massena M13	Inclination	90°	Easting	-214710.0900 (MGA 2020 Zone 56)

WATER		SAMPLES & FIELD TESTS		DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION		MOISTURE CONDITION	BACKFILL DETAILS		STANDPIPE DETAILS	
GWNE	BH2M_0.10-0.20	0.00			FILL: Silty SAND: fine to medium grained, dark brown with rootlets and gravels	-	Silty SAND: fine to medium grained, dark brown with rootlets and gravels	-	Cuttings 0.00m - 4.00m		Well Stickup =0.0m		
	BH2M_0.50-0.60 BH2M_0.50-0.95 SPT 0.50-0.95 4,8,7 N=15 BH2M_1.00-1.10	0.50	1	Silty CLAY: medium plasticity, orange-brown	M < PL								
	BH2M_1.50-1.60 BH2M_1.50-1.95 SPT 1.50-1.95 9,15,17 N=32 BH2M_2.00-2.10	1.50	2	Silty CLAY: medium plasticity, pale grey									
	BH2M_2.50-2.60	2.00	3										
60%	BH2M_3.00-3.10 BH2M_3.00-3.17 SPT 3.00-3.17 16,7/20 mm HB N=R	3.15			Sandy CLAY: low plasticity, red, sand is fine to medium grained trace sandstone fragments	-	SANDSTONE: fine to medium grained, pale grey-red, very thinky bedded, with ironstone bands		Bentonite 4.00m - 4.50m		0.0m - 4.50m PVC casing (50mm Ø)		
		3.42	4										
		4.00	5										
		5.00	6										
		6.00	7										
		6.90	8	NO CORE: 1280mm thick	Sand 4.50m - 9.00m								
		8.00	9										
		8.18	10	SANDSTONE: fine to medium grained, pale grey-brown, very thinly bedded with ironstainjng	4.50m - 9.0m PVC screen (50mm Ø)								
	9.00	11	NO CORE: 380mm thick										
	9.38	12	SANDSTONE: fine to medium grained, pale grey-brown, very thinly bedded with ironstaining										
		10.00											

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH2M

Location	159-167 Darley Street West, Mona Vale NSW	Started	02 December 2024		
Client	IPM Property Pty Ltd	Completed	02 December 2024		
Job No.	E26489.G03	Logged By	JO/LH	Date	02 December 2024
Sheets	2 of 2	Review By		Date	

Drilling Contractor	Stratacore	Surface RL	-	Northing	6247595.0205 (MGA 2020 Zone 56)
Plant	Massena M13	Inclination	90°	Easting	-214710.0900 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
60%		10.64			SANDSTONE: fine to medium grained, pale grey-brown, very thinly bedded with ironstaining			
		11			NO CORE: 570mm thick			
		11.21			SANDSTONE: fine to medium grained, pale grey, thinly bedded with ironstaining			
		12						
		13						
		14			Terminated at 14.00m. Target Depth Reached.			
		15						
		16						
		17						
		18						
		19						
		20						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

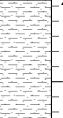
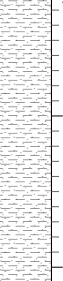


BOREHOLE LOG

BH ID: BH3M

Location	159-167 Darley Street West, Mona Vale NSW	Started	16 December 2024		
Client	IPM Property Pty Ltd	Completed	16 December 2024		
Job No.	E26489.G03	Logged By	DH	Date	16 December 2024
Sheets	1 of 2	Review By		Date	

Drilling Contractor	HartGeo	Surface RL	≈3.14 m (AHD)	Latitude	-
Plant	Ute Mounted Rig	Inclination	90°	Longitude	-

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE			0.00		3.14	FILL: SAND: fine grained, brown/grey-orange, trace sub-angular to sub-rounded gravels.	M	-	FILL
				0.30		2.84	FILL: Silty SAND: fine to medium grained, brown/grey-grey.			FILL
				0.60		2.54	Sandy CLAY: medium to high plasticity, grey/orange-grey, sand is fine to medium grained, trace sub-angular to sub-rounded gravels.	M ≈ PL	VSt	RESIDUAL SOIL
				1.40		1.74	Sandy CLAY: medium to high plasticity, grey/orange-grey, sand is fine to medium grained.			RESIDUAL SOIL
				3.30		-0.16	From 3.30m, red/orange-red	M < PL	-	
4										
5										
6										
7										
8										
9										
10										

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE LOG

BH ID: BH3M

Location159-167 Darley Street West, Mona Vale NSW

ClientIPM Property Pty Ltd

Job No.E26489.G03

Sheets2 of 2

Started16 December 2024

Completed16 December 2024

Logged ByDH

Review By

Date16 December 2024

Date

Drilling ContractorHartGeo

Surface RL≈3.14 m (AHD)

Latitude-

PlantUte Mounted Rig

Inclination90°

Longitude-

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE			11						
				12				M < PL	-	
				13						
				14		-10.66	Terminated at 13.80m. Target Depth Reached.			
				15						
				16						
				17						
				18						
				19						
				20						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH3M

Location	159-167 Darley Street West, Mona Vale NSW	Started	16 December 2024		
Client	IPM Property Pty Ltd	Completed	16 December 2024		
Job No.	E26489.G03	Logged By	DH	Date	16 December 2024
Sheets	1 of 2	Review By		Date	

Drilling Contractor	HartGeo	Surface RL	≈3.14 m (AHD)	Latitude	-
Plant	Ute Mounted Rig	Inclination	90°	Longitude	-

WATER		SAMPLES & FIELD TESTS		DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS		STANDPIPE DETAILS	
GWNE		0.00		3.14	FILL: SAND: fine grained, brown/grey-orange, trace sub-angular to sub-rounded gravels.	M	Steel Cover at Surface Grout 0.00m - 0.10m	Well Stickup =-0.10m (RL 3.04m)				
		0.30		2.84	FILL: Silty SAND: fine to medium grained, brown/grey-grey.							
		0.60		2.54	Sandy CLAY: medium to high plasticity, grey/orange-grey, sand is fine to medium grained, trace sub-angular to sub-rounded gravels.	M ≈ PL			Bentonite 0.10m - 1.90m	0.10m - 2.0m PVC casing (50mm Ø)		
		1	1.74	Sandy CLAY: medium to high plasticity, grey/orange-grey, sand is fine to medium grained.								
		1.40										
		2										
		3										
		3.30	-0.16	From 3.30m, red/orange-red	M < PL	Sand 1.90m - 13.80m	2.0m - 9.50m PVC screen (50mm Ø)					
		4										
		5										
		6										
		7										
		8										
		9										
		10										

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH3M

Location	159-167 Darley Street West, Mona Vale NSW	Started	16 December 2024		
Client	IPM Property Pty Ltd	Completed	16 December 2024		
Job No.	E26489.G03	Logged By	DH	Date	16 December 2024
Sheets	2 of 2	Review By		Date	

Drilling Contractor	HartGeo	Surface RL	≈3.14 m (AHD)	Latitude	-
Plant	Ute Mounted Rig	Inclination	90°	Longitude	-

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
GWNE		11				M < PL		
		12						
		13						
		10.6			Terminated at 13.80m. Target Depth Reached.			
		14						
		15						
		16						
		17						
		18						
		19						
		20						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

Appendix F -Groundwater Monitoring Event
Field Notes 14 January 2025

Z:\11 - Templates\Field Forms Worksheets\Water Sampling Field Sheet 2015\Water Sampling Field Sheet Current June 2021

Daily inspection

Save

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4/5

Edit

84%

Stabilisation range:
3 consecutive readings

±0.2°C	±3%	±20mV	±10%	±0.2
--------	-----	-------	------	------

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

Rev 1 (2015/06/01)
Form OF 017

2.111 - Template (Field Form, Water Sampling Field Sheet) 2022 (Water Sampling Field Sheet, C

WATER SAMPLING FIELD SHEET



Site Address: 159-167 Valey St Wych. Mount. Job Number: 626989
Client: Date: 14/11/24
Field Staff: M. K. R. C. Sampling Location ID: 87241
Well Location: Round No: 1
MEDIUM ☒ Groundwater ☐ Surface Water ☐ Stormwater ☐ Other:
SAMPLING POINT INFO
Well Installation Date: Stick up / (m) -0.07 (+ above ground - below ground)
Initial Well Depth (mBTOC): Screen Interval (mBTOC):
Previous Sampling Date: Previous SWL (mBTOC):
PID READINGS
PID Headspace (ppm): 0.5 PID Background (ppm): 0.1
PID Breathing Space (ppm): 0.1
PRE PURGE
Total Well Depth (mBTOC): 8.82 Well Head Condition: Low
SWL (mBTOC): 3.67 Water Column (m):
PHASE SEPARATED HYDROCARBONS (PSH)
Depth to PSH (mBTOC): PSH Visually Confirmed (Bailer):
PSH Thickness (mm):
Field Filtered
Yes (0.45 µm) ☒ No ☐ (Request lab 0.45 µm filter the sample)
PURGE AND SAMPLE
Sampling Method ☐ Bladder ☒ Peristaltic ☐ Submersible ☐ Other:
Depth of Pump Inlet (mBTOC): 7.8 Fill Timer:
Pump Pressure Regulator (psi): Discharge Timer:
Weather Conditions: Hm Cycle:
Pump on time: 11:30 Pump off time: 11:52

WATER QUALITY PARAMETERS

Probe Make and Model: WQAR 207 Bump Test Date and Time: 11:55 17/11/24

Time	Volume (L)	SWL (mBTOC)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, shear etc)
11:34	0.5	2.86	19.23	4305	16.9	0.010	3.79	grey/low, low, no, no
11:36	1.0	2.92	19.18	4250	7.9	0.010	2.70	
11:38	1.5	2.98	19.09	4237	7.5	0.010	3.05	↓ ↓ ↓ ↓

Stabilisation range:
3 consecutive readings

±0.2°C	±3%	±20mV	±10%	±0.2
--------	-----	-------	------	------

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

Rev 1 (2015/06/01)
Form OF 017

2.111 - Template (Field Form, Water Sampling Field Sheet) 2022 (Water Sampling Field Sheet, C

WATER SAMPLING FIELD SHEET



Site Address: 159-167 Paley St West, Manville		Job Number: 626487						
Client:		Date: 14/1/24						
Field Staff: MC, RC, AS		Sampling Location ID: BH3M						
Well Location:		Round No: 1						
MEDIUM ☒ Groundwater ☐ Surface Water ☐ Stormwater ☐ Other:								
SAMPLING POINT INFO								
Well Installation Date:		Stick up / down (m): -0.10 (+ above ground - below ground)						
Initial Well Depth (mBTOC):		Screen Interval (mBTOC):						
Previous Sampling Date:		Previous SWL (mBTOC):						
PID READINGS								
PID Headspace (ppm): 0.1		PID Background (ppm): 0.1						
PID Breathing Space (ppm): 0.1								
PRE PURGE								
Total Well Depth (mBTOC): 9.48		Well Head Condition: Good						
SWL (mBTOC): 2.15		Water Column (m):						
PHASE SEPARATED HYDROCARBONS (PSH)								
Depth to PSH (mBTOC):		PSH Visually Confirmed (Bailer):						
PSH Thickness (mm):								
Field Filtered								
Yes (0.45 µm) ☒		No ☐ (Request lab 0.45 µm filter the sample)						
PURGE AND SAMPLE								
Sampling Method ☐ Bladder ☒ Peristaltic ☐ Submersible ☐ Other:								
Depth of Pump Inlet (mBTOC): 8.5		Fill Timer:						
Pump Pressure Regulator (psi):		Discharge Timer:						
Weather Conditions: Fine		Cycle:						
Pump on time: 12:48		Pump off time: 13:08						
WATER QUALITY PARAMETERS								
Probe Make and Model: WQM007		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, sheen etc.)
12:51	0.5	3.18	19.91	9836	19.5	0.00	3.59	orange-brown, high, no, no
12:54	1.0	3.23	19.81	9730	20.5	0.00	3.58	↓ ↓ ↓
12:57	1.5	2.29	19.71	9743	20.7	0.00	3.53	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	
OTHER COMMENTS/OBSERVATIONS:								
SIGNATURE: ASD								

Appendix G -Chain of Custody Forms and Sample Receipt Advices

Sheet 1 of 4					Sample Matrix				Analysis														Comments							
Site: 159-167 Darley Street West, Mona Vale				Project No: E26489					E-MAILED 5/12/24 4:40pm														HM 1 Arsenic Cadmium Chromium							
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		SOIL	WATER	0.45 µm filtered	OTHER	HM 3 / TRH/BTEX/PAHs OC/PCP/CBA/Asbestos	HM 4 / TRH/BTEX/PAHs	HM 5 / TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	Excavated Natural Material (ENM) / SOE	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM 6 / pH / EC / Foreign Materials)	Dewatering Suite	pH / pH peroxide	sPOCAs	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	Lead	TCLP HM 8 / PAH		
			Date	Time																										
BH101_0.10-0.20	1	1st & ZLB & ASS	2024-12-02	am/pm	X				X																					Dewatering Suite pH & EC TOC / TDN Hardness Total Cyanide Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) TRH (F1, F2, F3, F4) BTEX PAH Total Phenol
BH101_0.30-0.40		1st & ZLB & ASS	2024-12-02	am/pm	X																									
BH101_0.60-0.70	2	1st & ZLB & ASS	2024-12-02	am/pm	X					X																				
BH102_0.20-0.30	3	1st & ZLB	2024-12-02	am/pm	X				X																					
BH103_0.20-0.30	4	1st & ZLB	2024-12-02	am/pm	X				X																					
BH103_0.70-0.80		1st & ZLB	2024-12-02	am/pm	X																									
BH104_0.20-0.30	5	1st & ZLB	2024-12-02	am/pm	X				X																					
BH104_0.70-0.80		1st & ZLB	2024-12-02	am/pm	X																									
BH105_0.20-0.30	6	1st & ZLB	2024-12-02	am/pm	X				X																					
BH105_0.70-0.80	7	1st & ZLB	2024-12-02	am/pm	X					X																				
BH106_0.20-0.30	8	1st & ZLB	2024-12-02	am/pm	X				X																					
BH106_0.70-0.80	9	1st & ZLB	2024-12-02	am/pm	X					X																				

SGS EHS Sydney COC

SE275489



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

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

Sampler's Name (EI): Leo Ho/Jacky Ong	Received by (SGS):
Print: Andrew Schmidt	Print:
Signature: <i>A. Schmidt</i>	Signature: <i>B. Schubert</i>
Date: 5/12/2024	Date: 05/12/24 @ 4:15

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

Report with EI Waste Classification Table ☒

Sampler's Comments:
cc: Leo.HO
Please forward QT1 to envirolab with ice
TRH - include F1,F2,F3,F4



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SGS June 2021 FORM v5 - 002

Sheet 2 of 4					Sample Matrix				Analysis																Comments				
Site: 159-167 Darley Street West, Mona Vale				Project No: E26489	SOIL	WATER	0.45 µm field filtered	OTHER	HM ⁶ / TRH/BTEX/PAHs OC/PCP/PCB/Alabastia	HM ⁶ / TRH/BTEX/PAHs	HM ⁶ / TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM ⁶ / pH / EC / Foreign Materials)	Dewatering Suite	pH / pH peroxide	aPOCAS	Chromium Reductible Sulfur (Cr/S)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	Lead	TCLP-HM ⁶ / PAH	HM ⁶ Arsenic Cadmium Chromium Lead Mercury Nickel Zinc
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 Time																									
BH107_0.20-0.30	10	Jar & ZLB	2024-12-02 am/pm		X				X																				HM ⁶ Arsenic Cadmium Chromium
BH107_0.70-0.80	11	Jar & ZLB	2024-12-02 am/pm		X					X																			HM ⁶ Arsenic Cadmium Chromium Lead Mercury Nickel
BH108_0.00-0.10	12	Jar & ZLB	2024-12-02 am/pm		X				X																				Dewatering Suite pH & EC TDS / TDU Hardness Total Cyanide Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) TRH (P1, F2, F3, F4) BTEX PAH Total Phenol
BH108_0.30-0.40		Jar & ZLB	2024-12-02 am/pm		X																								
BH109_0.30-0.40	13	Jar & ZLB	2024-12-02 am/pm		X				X																				
BH110_0.30-0.40	14	Jar & ZLB	2024-12-02 am/pm		X				X																				LABORATORY TURNAROUND
BH111_0.10-0.20	15	Jar & ZLB	2024-12-02 am/pm		X				X																				☒ Standard
BH111_0.40-0.50		Jar & ZLB	2024-12-02 am/pm		X																								☐ 24 Hours
BH112_0.00-0.10	16	Jar & ZLB	2024-12-02 am/pm		X				X																				☐ 48 Hours
BH112_0.50-0.60		Jar & ZLB	2024-12-02 am/pm		X																								☐ 72 Hours
BH11M_0.10-0.20	17	Jar	2024-12-03 am/pm		X				X																				☐ Other
BH11M_0.50-0.60		Jar	2024-12-03 am/pm		X																								

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

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

Sampler's Name (EI): Leo Ho/Jacky Ong	Received by (BOS):
Print: Andrew Schmidt	Print:
Signature: <i>A Schmidt</i>	Signature: <i>A. Pulgarin</i>
Date: 5/12/2024	Date: 05/12/24 04:15

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

Report with EI Waste Classification Table ☒

Sampler's Comments:
cc: Leo.HO
Please forward QT1 to envirolab with ice
TRH - include F1,F2,F3,F4



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GC June 2021 FORM 9-305

Sheet 3 of 4					Sample Matrix				Analysis														Comments						
Site: 159-167 Darley Street West, Mona Vale				Project No: E26489	SOIL	WATER	0.45 µm field filtered	OTHER	HM ⁸ /TRH/BTEX/PAHs OC/PC/PCB/Asbestos	HM ⁸ /TRH/BTEX/PAHs	HM ⁸ /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	Excluded Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM ⁸ /pH / EC / Foreign Materials)	Dewatering Suite	pH / pH peroxide	sPOCAS	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	Lead	TCLP HM ⁸ / PAH	HM ⁸ Arsenic Cadmium Chromium Copper Lead Mercury Nickel Zinc
Laboratory: SGS Australia Unit 16, 33 Maddox Street, ALEXANDRIA NSW 2015 P: 02 8594 0400 F: 02 8594 0489	Sample ID	Laboratory ID	Container Type	Sampling Date Time																									
BH1M_1.00-1.10	18	Jar	2024-12-03 am/pm		X					X																			HM ⁸ Arsenic Cadmium Chromium Lead Mercury Nickel
BH1M_1.50-1.60		Jar	2024-12-03 am/pm		X																								Dewatering Suite pH & EC TDN / TDU Hardness Total Cyanide Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) TRH (F1, F2, F3, F4) BTEX PAH Total Phenol
BH1M_2.00-2.10		Jar	2024-12-03 am/pm		X																								
BH1M_2.50-2.60		Jar	2024-12-03 am/pm		X																								
BH1M_3.00-3.10		Jar	2024-12-03 am/pm		X																								
BH1M_3.50-3.60		Jar	2024-12-03 am/pm		X																								
~~BH1M_3.50-3.60~~		Jar	2024-12-03 am/pm		X																								
BH1M_4.00-4.10		Jar	2024-12-03 am/pm		X																								
BH1M_4.50-4.60		Jar	2024-12-05 am/pm		X																								
BH1M_5.00-5.10		Jar	2024-12-03 am/pm		X																								
BH1M_5.50-5.60		Jar	2024-12-03 am/pm		X																								
BH1M_6.00-6.10		Jar	2024-12-03 am/pm		X																								

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

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lab@eiaustralia.com.au



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

Sampler's Name (EI): Leo Ho/Jacky Ong
Print: Andrew Schmidt
Signature: *A Schmidt*
Date: 5/12/2024

Received by (SGS):
Print:
Signature: *P. Subany*
Date: 05/12/24 04:15

Report with EI Waste Classification Table ☒

Sampler's Comments:
cc: Leo.HO
Please forward QT1 to envirolab with ice
TRH - include F1,F2,F3,F4

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

Site:				Project No:		Sample Matrix																		Analysis																		Comments				
Laboratory:				Container Type		Sampling																																								
Sample ID				Laboratory ID		Date		Time																																						
159-167 Darley Street West, Mona Vale				E26489																																										
SGS Australia Unit 16, 33 Maddox Street, ALEXANDRIA NSW 2015 P: 02 8594 0400 F: 02 8594 0499				Jar		2024-12-03		am/pm																																						
BH2M_0.10-0.20				Jar & ZLB		2024-12-02		am/pm																																						
BH2M_0.50-0.60				Jar		2024-12-02		am/pm																																						
BH2M_1.00-1.10				Jar & ZLB		2024-12-02		am/pm																																						
BH2M_1.50-1.60				Jar		2024-12-02		am/pm																																						
BH2M_2.00-2.10				Jar & ZLB		2024-12-05		am/pm																																						
BH2M_2.50-2.60				Jar & ZLB		2024-12-02		am/pm																																						
BH2M_3.00-3.10				Jar & ZLB		2024-12-02		am/pm																																						
QR				S, P, VC		2024-12-02		am/pm																																						
QRB				S, P, VC		2024-12-02		am/pm																																						
QD				Jar		2024-12-02		am/pm																																						
QTB1				VC		Lab prepared		X																																						
QTS1				VC		Lab prepared		X																																						
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 BB = Bulk Bag										Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.																		Report with EI Waste Classification Table																		☒ Standard ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ Other
Sampler's Name (EI): Leo Ho/Jacky Ong Print: Andrew Schmidt Signature: [Signature] Date: 5/12/2024										Received by (SGS): Print: [Signature] Signature: [Signature] Date: 05/12/24 @ 4.15																		Sampler's Comments: cc: Leo.HO Please forward QT1 to envirolab with ice TRH - include F1,F2,F3,F4																		
IMPORTANT: Please e-mail laboratory results to: lab@eiaustralia.com.au																																														



SAMPLE RECEIPT ADVICE

SE275489

CLIENT DETAILS

Contact **Andrew Schmidt**
Client **EI AUSTRALIA**
Address **SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009**

Telephone **61 2 95160722**
Facsimile **(Not specified)**
Email **andrew.schmidt@eiaustralia.com.au**

Project **E26489 159-167 Darley St West Mona Vale**
Order Number **E26489**
Samples **24**

LABORATORY DETAILS

Manager **Shane McDermott**
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 **Thu 5/12/2024**
Report Due **Thu 12/12/2024**
SGS Reference **SE275489**

SUBMISSION DETAILS

This is to confirm that 24 samples were received on Thursday 5/12/2024. Results are expected to be ready by COB Thursday 12/12/2024. Please quote SGS reference SE275489 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	23 Soil, 1 Water	Type of documentation received	COC
Date documentation received	05/12/2024@4:40pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.5°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		

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

COMMENTS

11 Soil and 1 Water samples have been placed on hold as no tests have been assigned for them. These samples will not be processed. QT1 forwarded to Envirolab.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.



SAMPLE RECEIPT ADVICE

SE275489

CLIENT DETAILS

Client EI AUSTRALIA

Project E26489 159-167 Darley St West Mona Vale

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 Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH101_0.10-0.20	27	14	26	8	7	10	11	7
002	BH101_0.60-0.70	-	-	26	-	7	10	11	7
003	BH102_0.20-0.30	27	14	26	8	7	10	11	7
004	BH103_0.20-0.30	27	14	26	8	7	10	11	7
005	BH104_0.20-0.30	27	14	26	8	7	10	11	7
006	BH105_0.20-0.30	27	14	26	8	7	10	11	7
007	BH105_0.70-0.80	-	-	26	-	7	10	11	7
008	BH106_0.20-0.30	27	14	26	8	7	10	11	7
009	BH106_0.70-0.80	-	-	26	-	7	10	11	7
010	BH107_0.20-0.30	27	14	26	8	7	10	11	7
011	BH107_0.70-0.80	-	-	26	-	7	10	11	7
012	BH108_0.00-0.10	27	14	26	8	7	10	11	7
013	BH109_0.30-0.40	27	14	26	8	7	10	11	7
014	BH110_0.30-0.40	27	14	26	8	7	10	11	7
015	BH111_0.10-0.20	27	14	26	8	7	10	11	7
016	BH112_0.00-0.10	27	14	26	8	7	10	11	7
017	BH1M_0.10-0.20	27	14	26	8	7	10	11	7
018	BH1M_1.00-1.10	-	-	26	-	7	10	11	7
019	BH2M_0.10-0.20	27	14	26	8	7	10	11	7
020	BH2M_1.00-1.10	-	-	26	-	7	10	11	7
022	QD	-	-	-	-	7	10	11	7
023	QTB1	-	-	-	-	-	-	11	-
024	QTS1	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

The above table represents SGS' 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

SE275489

CLIENT DETAILS

Client EI AUSTRALIA

Project E26489 159-167 Darley St West Mona Vale

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH101_0.10-0.20	3	1	1	-	-
002	BH101_0.60-0.70	-	1	1	-	-
003	BH102_0.20-0.30	3	1	1	-	-
004	BH103_0.20-0.30	3	1	1	-	-
005	BH104_0.20-0.30	3	1	1	-	-
006	BH105_0.20-0.30	3	1	1	-	-
007	BH105_0.70-0.80	-	1	1	-	-
008	BH106_0.20-0.30	3	1	1	-	-
009	BH106_0.70-0.80	-	1	1	-	-
010	BH107_0.20-0.30	3	1	1	-	-
011	BH107_0.70-0.80	-	1	1	-	-
012	BH108_0.00-0.10	3	1	1	-	-
013	BH109_0.30-0.40	3	1	1	-	-
014	BH110_0.30-0.40	3	1	1	-	-
015	BH111_0.10-0.20	3	1	1	-	-
016	BH112_0.00-0.10	3	1	1	-	-
017	BH1M_0.10-0.20	3	1	1	-	-
018	BH1M_1.00-1.10	-	1	1	-	-
019	BH2M_0.10-0.20	3	1	1	-	-
020	BH2M_1.00-1.10	-	1	1	-	-
021	QR	-	-	-	11	7
022	QD	-	1	1	-	-
023	QTB1	-	-	1	-	-

CONTINUED OVERLEAF

The above table represents SGS' 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

SE275489

CLIENT DETAILS

Client EI AUSTRALIA

Project E26489 159-167 Darley St West Mona Vale

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water
021	QR	1	7	9

The above table represents SGS' 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

SE276055

CLIENT DETAILS

Contact Leo Ho
Client EIA AUSTRALIA
Address SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email leo.ho@eiaustralia.com.au

Project **E26489 159-167 Darley Street West, Mona V**
Order Number **E26489**
Samples 2

LABORATORY DETAILS

Manager Shane McDermott
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 Wed 18/12/2024
Report Due Fri 27/12/2024
SGS Reference **SE276055**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Wednesday 18/12/2024. Results are expected to be ready by COB Friday 27/12/2024. Please quote SGS reference SE276055 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Soil	Type of documentation received	COC
Date documentation received	18/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.5°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		

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

COMMENTS

1 Soil sample has been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

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SAMPLE RECEIPT ADVICE

SE276055

CLIENT DETAILS

Client EI AUSTRALIA

Project E26489 159-167 Darley Street West,Mona V

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 Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH3M_0.3-0.4	27	14	26	8	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' 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

SE276055

CLIENT DETAILS

Client EI AUSTRALIA

Project E26489 159-167 Darley Street West,Mona V

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH3M_0.3-0.4	3	1	1

The above table represents SGS' 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

SE276056

CLIENT DETAILS

Contact Leo Ho
Client EIA AUSTRALIA
Address SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email leo.ho@eiaustralia.com.au

Project **E26489 159-167 Darley Street West, Mona**
Order Number **E26489**
Samples 1

LABORATORY DETAILS

Manager Shane McDermott
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 Wed 18/12/2024
Report Due Fri 27/12/2024
SGS Reference **SE276056**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Wednesday 18/12/2024. Results are expected to be ready by COB Friday 27/12/2024. Please quote SGS reference SE276056 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 soil	Type of documentation received	COC
Date documentation received	18/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.5 °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		

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

COMMENTS

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SAMPLE RECEIPT ADVICE

SE276056

CLIENT DETAILS

Client EI AUSTRALIA

Project E26489 159-167 Darley Street West, Mona

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH3M.1.7-1.8	1	26	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' 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

SE276056

CLIENT DETAILS

Client EI AUSTRALIA

Project E26489 159-167 Darley Street West, Mona

SUMMARY OF ANALYSIS

		Moisture Content
No.	Sample ID	
001	BH3M.1.7-1.8	1

The above table represents SGS' 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					Sample Matrix				Analysis														Comments								
Site: 159-167 Darley St West, Mona Vale					Project No:																			HM ⁶ Arsenic Cadmium Chromium Copper Lead Mercury Nickel Zinc							
Laboratory: SGS Australia Unit 16, 33 Maddox Street, ALEXANDRIA NSW 2015 P: 02 8594 0400 F: 02 8594 0499																								HM ⁶ Arsenic Cadmium Chromium Lead Mercury Nickel							
Sample ID	Laboratory ID	Container Type	Sampling		SOIL	WATER	0.45 µm field filtered	OTHER	HM ⁶ / TRH (including F1, F2, F3, F4) BTEX/PAHs/DCP/OP/PCB/Asbestos	HM ⁶ / TRH (including F1, F2, F3, F4) BTEX/PAHs	HM ⁶ / TRH (including F1, F2, F3, F4) BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification (500mg)	Asbestos 10L field screening	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM ⁶ / pH / EC / Foreign Materials)	Dewatering Suite	pH / pH peroxide	sPOCAS	Chromium Reducible Sulfur (CRS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	Lead	TCUP HM ⁶ / PAH		
			Date	Time																											
BH1M	1	S,P,VC	14/1/25	amp		X				X			X																	Dewatering Suite pH & EC TDS / TDU Hardness Total Cyanide Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) TRH (F1, F2, F3, F4) BTEX PAHs Total Phenol	
BH2M	2																														
BH3M	3																														
GW-Q01	4										X																				
GW-QR1	5									X																					
GW-QRB1	6	VC																													
GW-QTB1	7	VC										X																			
GW-QTS1	8	VC										X																			

SGS EHS Sydney COC
SE276733



LABORATORY TURNAROUND

☒ Standard

☐ 24 Hours

☐ 48 Hours

☐ 72 Hours

☐ Other

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

BB = Bulk Bag

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

Sampler's Name (EI): Print: Andrew Schmidt Signature: [Signature] Date: 14/1/25	Received by (SGS): Print: [Signature] Signature: [Signature] Date: 14.1.25 3:55
---	---

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

Report with EI Waste Classification Table ☐

Sampler's Comments:
cc: Leo Ho
Matthew Chee
Riley Clark
Please fwd GW-QR1 to Envirolab with Ice.



Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC November 2014 FORM 4.0 - SGS



SAMPLE RECEIPT ADVICE

SE276733

CLIENT DETAILS

Contact **Andrew Schmidt**
Client **EI AUSTRALIA**
Address **SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009**

Telephone **61 2 95160722**
Facsimile **(Not specified)**
Email **andrew.schmidt@eiaustralia.com.au**

Project **159-167 Pasley St West Mona Vale**
Order Number **(Not specified)**
Samples **8**

LABORATORY DETAILS

Manager **Shane McDermott**
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 14/1/2025**
Report Due **Tue 21/1/2025**
SGS Reference **SE276733**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Tuesday 14/1/2025. Results are expected to be ready by COB Tuesday 21/1/2025. Please quote SGS reference SE276733 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	7 Water	Type of documentation received	COC
Date documentation received	14/1/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15.3°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		

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

COMMENTS

1 Soil sample has been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

QT1 forwarded to Envirolab

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SAMPLE RECEIPT ADVICE

SE276733

CLIENT DETAILS

Client **EI AUSTRALIA**

Project **159-167 Pasley St West Mona Vale**

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	77	7
002	BH2M	1	22	7	9	77	7
003	BH3M	1	22	7	9	77	7
004	GW-QD1	1	-	7	9	11	7
005	GW-QR1	1	-	7	9	11	7
007	GW-QTB1	-	-	-	-	11	-
008	GW-QTS1	-	-	-	-	11	-

The above table represents SGS' 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 .

21/01/25

3705112

[illegible]

Appendix H -Laboratory Analytical Reports

CLIENT DETAILS

Contact Andrew Schmidt
Client EI AUSTRALIA
Address SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email andrew.schmidt@eiaustralia.com.au

Project **E26489 159-167 Darley St West Mona Vale**
Order Number **E26489**
Samples 24

LABORATORY DETAILS

Manager Shane McDermott
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 **SE275489 R0**
Date Received 5/12/2024
Date Reported 12/12/2024

COMMENTS

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

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

Sample #17: A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.

Sample #16: Chrysotile and Amosite asbestos found in approx 20x10x5mm cement sheet fragment.

Sample #19: Chrysotile and Amosite asbestos found as approx 5x5x2mm fibrous mass below the RL of 0.1g/kg.

Asbestos analysed by Approved Identifier Cameron Smith.

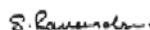
SIGNATORIES



Dong LIANG
Metals/Inorganics Team Leader



Ly Kim HA
Organic Section Head



Ravee SIVASUBRAMANIAM
Hygiene Team Leader



Shane MCDERMOTT
Laboratory Manager



Teresa NGUYEN
Organic Chemist



ANALYTICAL RESULTS

SE275489 R0

VOC's in Soil [AN433] Tested: 10/12/2024

			BH101_0.10-0.20	BH101_0.60-0.70	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.001	SE275489.002	SE275489.003	SE275489.004	SE275489.005
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 (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

			BH105_0.20-0.30	BH105_0.70-0.80	BH106_0.20-0.30	BH106_0.70-0.80	BH107_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.006	SE275489.007	SE275489.008	SE275489.009	SE275489.010
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 (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

			BH107_0.70-0.80	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40	BH111_0.10-0.20
			SOIL	SOIL	SOIL	SOIL	SOIL
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.011	SE275489.012	SE275489.013	SE275489.014	SE275489.015
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 (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

			BH112_0.00-0.10	BH1M_0.10-0.20	BH1M_1.00-1.10	BH2M_0.10-0.20	BH2M_1.00-1.10
			SOIL	SOIL	SOIL	SOIL	SOIL
			2/12/2024	3/12/2024	3/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.016	SE275489.017	SE275489.018	SE275489.019	SE275489.020
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 (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1



ANALYTICAL RESULTS

SE275489 R0

VOC's in Soil [AN433] Tested: 10/12/2024 (continued)

			QD	QTB1	QTS1
			SOIL	SOIL	SOIL
			-	-	-
			2/12/2024	2/12/2024	2/12/2024
			SE275489.022	SE275489.023	SE275489.024
PARAMETER	UOM	LOR			
Benzene	mg/kg	0.1	<0.1	<0.1	[129%]
Toluene	mg/kg	0.1	<0.1	<0.1	[109%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	[105%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	[104%]
o-xylene	mg/kg	0.1	<0.1	<0.1	[102%]
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-
Total BTEX*	mg/kg	0.6	<0.6	<0.6	-
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1



ANALYTICAL RESULTS

SE275489 R0

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 10/12/2024

PARAMETER	UOM	LOR	BH101_0.10-0.20	BH101_0.60-0.70	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.001	2/12/2024 SE275489.002	2/12/2024 SE275489.003	2/12/2024 SE275489.004	2/12/2024 SE275489.005
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

PARAMETER	UOM	LOR	BH105_0.20-0.30	BH105_0.70-0.80	BH106_0.20-0.30	BH106_0.70-0.80	BH107_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.006	2/12/2024 SE275489.007	2/12/2024 SE275489.008	2/12/2024 SE275489.009	2/12/2024 SE275489.010
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

PARAMETER	UOM	LOR	BH107_0.70-0.80	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40	BH111_0.10-0.20
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.011	2/12/2024 SE275489.012	2/12/2024 SE275489.013	2/12/2024 SE275489.014	2/12/2024 SE275489.015
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

PARAMETER	UOM	LOR	BH112_0.00-0.10	BH1M_0.10-0.20	BH1M_1.00-1.10	BH2M_0.10-0.20	BH2M_1.00-1.10
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.016	3/12/2024 SE275489.017	3/12/2024 SE275489.018	2/12/2024 SE275489.019	2/12/2024 SE275489.020
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

PARAMETER	UOM	LOR	QD
			SOIL
			-
			2/12/2024 SE275489.022
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25



ANALYTICAL RESULTS

SE275489 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 10/12/2024

PARAMETER	UOM	LOR	BH101_0.10-0.20	BH101_0.60-0.70	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.001	2/12/2024 SE275489.002	2/12/2024 SE275489.003	2/12/2024 SE275489.004	2/12/2024 SE275489.005
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	55	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	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 (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH105_0.20-0.30	BH105_0.70-0.80	BH106_0.20-0.30	BH106_0.70-0.80	BH107_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.006	2/12/2024 SE275489.007	2/12/2024 SE275489.008	2/12/2024 SE275489.009	2/12/2024 SE275489.010
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	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	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 (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH107_0.70-0.80	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40	BH111_0.10-0.20
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.011	2/12/2024 SE275489.012	2/12/2024 SE275489.013	2/12/2024 SE275489.014	2/12/2024 SE275489.015
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	55	<45	<45	73
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	93
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 (F bands)	mg/kg	210	<210	<210	<210	<210	<210



ANALYTICAL RESULTS

SE275489 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 10/12/2024 (continued)

			BH112_0.00-0.10	BH1M_0.10-0.20	BH1M_1.00-1.10	BH2M_0.10-0.20	BH2M_1.00-1.10
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	3/12/2024	3/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.016	SE275489.017	SE275489.018	SE275489.019	SE275489.020
TRH C10-C14	mg/kg	20	<20	35	<20	<20	<20
TRH C15-C28	mg/kg	45	79	310	<45	<45	<45
TRH C29-C36	mg/kg	45	120	430	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	50	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	50	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	170	610	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	200	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	200	780	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	860	<210	<210	<210

			QD
			SOIL
			-
			2/12/2024
PARAMETER	UOM	LOR	SE275489.022
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-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210



ANALYTICAL RESULTS

SE275489 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 10/12/2024

			BH101_0.10-0.20	BH101_0.60-0.70	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.001	SE275489.002	SE275489.003	SE275489.004	SE275489.005
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	<0.1	<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(ah)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 (mg/kg)	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
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

			BH105_0.20-0.30	BH105_0.70-0.80	BH106_0.20-0.30	BH106_0.70-0.80	BH107_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.006	SE275489.007	SE275489.008	SE275489.009	SE275489.010
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(ah)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 (mg/kg)	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
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8



ANALYTICAL RESULTS

SE275489 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 10/12/2024 (continued)

PARAMETER	UOM	LOR	BH107_0.70-0.80	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40	BH111_0.10-0.20
			SOIL	SOIL	SOIL	SOIL	SOIL
			2/12/2024 SE275489.011	2/12/2024 SE275489.012	2/12/2024 SE275489.013	2/12/2024 SE275489.014	2/12/2024 SE275489.015
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(ah)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 (mg/kg)	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
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH112_0.00-0.10	BH1M_0.10-0.20	BH1M_1.00-1.10	BH2M_0.10-0.20	BH2M_1.00-1.10
			SOIL	SOIL	SOIL	SOIL	SOIL
			2/12/2024 SE275489.016	3/12/2024 SE275489.017	3/12/2024 SE275489.018	2/12/2024 SE275489.019	2/12/2024 SE275489.020
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(ah)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 (mg/kg)	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
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8



ANALYTICAL RESULTS

SE275489 R0

OP Pesticides in Soil [AN420] Tested: 10/12/2024

			BH101_0.10-0.20	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30	BH105_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.001	SE275489.003	SE275489.004	SE275489.005	SE275489.006
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
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

			BH106_0.20-0.30	BH107_0.20-0.30	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.008	SE275489.010	SE275489.012	SE275489.013	SE275489.014
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
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

			BH111_0.10-0.20	BH112_0.00-0.10	BH1M_0.10-0.20	BH2M_0.10-0.20
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			2/12/2024	2/12/2024	3/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.015	SE275489.016	SE275489.017	SE275489.019
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	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
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	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
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7



ANALYTICAL RESULTS

SE275489 R0

OC Pesticides in Soil [AN420] Tested: 10/12/2024

			BH101_0.10-0.20	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30	BH105_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.001	SE275489.003	SE275489.004	SE275489.005	SE275489.006
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	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
Lindane (gamma 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	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
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	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	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	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
Endosulfan sulphate	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
Endrin ketone	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
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1



ANALYTICAL RESULTS

SE275489 R0

OC Pesticides in Soil [AN420] Tested: 10/12/2024 (continued)

PARAMETER	UOM	LOR	BH106_0.20-0.30	BH107_0.20-0.30	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40
			SOIL	SOIL	SOIL	SOIL	SOIL
			2/12/2024 SE275489.008	2/12/2024 SE275489.010	2/12/2024 SE275489.012	2/12/2024 SE275489.013	2/12/2024 SE275489.014
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	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
Lindane (gamma 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	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
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	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	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	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
Endosulfan sulphate	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
Endrin ketone	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
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1



ANALYTICAL RESULTS

SE275489 R0

OC Pesticides in Soil [AN420] Tested: 10/12/2024 (continued)

			BH111_0.10-0.20	BH112_0.00-0.10	BH1M_0.10-0.20	BH2M_0.10-0.20
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			2/12/2024	2/12/2024	3/12/2024	2/12/2024
			SE275489.015	SE275489.016	SE275489.017	SE275489.019
PARAMETER	UOM	LOR				
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	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
Dieldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	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
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1



ANALYTICAL RESULTS

SE275489 R0

PCBs in Soil [AN420] Tested: 10/12/2024

PARAMETER	UOM	LOR	BH101_0.10-0.20	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30	BH105_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.001	2/12/2024 SE275489.003	2/12/2024 SE275489.004	2/12/2024 SE275489.005	2/12/2024 SE275489.006
Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH106_0.20-0.30	BH107_0.20-0.30	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.008	2/12/2024 SE275489.010	2/12/2024 SE275489.012	2/12/2024 SE275489.013	2/12/2024 SE275489.014
Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH111_0.10-0.20	BH112_0.00-0.10	BH1M_0.10-0.20	BH2M_0.10-0.20
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			2/12/2024 SE275489.015	2/12/2024 SE275489.016	3/12/2024 SE275489.017	2/12/2024 SE275489.019
Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1



ANALYTICAL RESULTS

SE275489 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 10/12/2024

PARAMETER	UOM	LOR	BH101_0.10-0.20	BH101_0.60-0.70	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.001	2/12/2024 SE275489.002	2/12/2024 SE275489.003	2/12/2024 SE275489.004	2/12/2024 SE275489.005
Arsenic, As	mg/kg	1	4	1	3	3	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	8.5	18	12	7.5	7.2
Copper, Cu	mg/kg	0.5	6.2	<0.5	6.8	5.8	4.1
Lead, Pb	mg/kg	1	24	4	17	30	21
Nickel, Ni	mg/kg	0.5	2.7	<0.5	1.2	1.4	1.4
Zinc, Zn	mg/kg	2	47	<2.0	26	29	56

PARAMETER	UOM	LOR	BH105_0.20-0.30	BH105_0.70-0.80	BH106_0.20-0.30	BH106_0.70-0.80	BH107_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.006	2/12/2024 SE275489.007	2/12/2024 SE275489.008	2/12/2024 SE275489.009	2/12/2024 SE275489.010
Arsenic, As	mg/kg	1	3	1	2	2	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	14	6.2	6.3	7.5	8.7
Copper, Cu	mg/kg	0.5	8.6	<0.5	1.8	1.6	3.0
Lead, Pb	mg/kg	1	18	4	12	7	12
Nickel, Ni	mg/kg	0.5	12	0.7	0.8	1.1	0.8
Zinc, Zn	mg/kg	2	26	<2.0	9.9	4.5	19

PARAMETER	UOM	LOR	BH107_0.70-0.80	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40	BH111_0.10-0.20
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.011	2/12/2024 SE275489.012	2/12/2024 SE275489.013	2/12/2024 SE275489.014	2/12/2024 SE275489.015
Arsenic, As	mg/kg	1	2	6	2	2	10
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	0.7
Chromium, Cr	mg/kg	0.5	27	21	12	7.7	35
Copper, Cu	mg/kg	0.5	<0.5	11	2.5	2.8	34
Lead, Pb	mg/kg	1	12	21	9	9	72
Nickel, Ni	mg/kg	0.5	0.6	1.4	0.8	0.8	2.8
Zinc, Zn	mg/kg	2	4.1	71	24	28	280

PARAMETER	UOM	LOR	BH112_0.00-0.10	BH1M_0.10-0.20	BH1M_1.00-1.10	BH2M_0.10-0.20	BH2M_1.00-1.10
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024 SE275489.016	3/12/2024 SE275489.017	3/12/2024 SE275489.018	2/12/2024 SE275489.019	2/12/2024 SE275489.020
Arsenic, As	mg/kg	1	8	6	3	3	2
Cadmium, Cd	mg/kg	0.3	<0.3	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	8.3	8.8	27	16	8.3
Copper, Cu	mg/kg	0.5	21	15	0.9	5.7	<0.5
Lead, Pb	mg/kg	1	37	48	22	52	4
Nickel, Ni	mg/kg	0.5	1.9	4.5	1.8	4.8	<0.5
Zinc, Zn	mg/kg	2	91	94	44	320	2.5



ANALYTICAL RESULTS

SE275489 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 10/12/2024

			QD
			SOIL
			-
			2/12/2024
			SE275489.022
PARAMETER	UOM	LOR	
Arsenic, As	mg/kg	1	3
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.5	6.4
Copper, Cu	mg/kg	0.5	6.0
Lead, Pb	mg/kg	1	24
Nickel, Ni	mg/kg	0.5	1.4
Zinc, Zn	mg/kg	2	46



ANALYTICAL RESULTS

SE275489 R0

Mercury in Soil [AN312] Tested: 10/12/2024

			BH101_0.10-0.20	BH101_0.60-0.70	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30
			SOIL - 2/12/2024 SE275489.001	SOIL - 2/12/2024 SE275489.002	SOIL - 2/12/2024 SE275489.003	SOIL - 2/12/2024 SE275489.004	SOIL - 2/12/2024 SE275489.005
PARAMETER	UOM	LOR					
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	0.06	<0.05

			BH105_0.20-0.30	BH105_0.70-0.80	BH106_0.20-0.30	BH106_0.70-0.80	BH107_0.20-0.30
			SOIL - 2/12/2024 SE275489.006	SOIL - 2/12/2024 SE275489.007	SOIL - 2/12/2024 SE275489.008	SOIL - 2/12/2024 SE275489.009	SOIL - 2/12/2024 SE275489.010
PARAMETER	UOM	LOR					
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH107_0.70-0.80	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40	BH111_0.10-0.20
			SOIL - 2/12/2024 SE275489.011	SOIL - 2/12/2024 SE275489.012	SOIL - 2/12/2024 SE275489.013	SOIL - 2/12/2024 SE275489.014	SOIL - 2/12/2024 SE275489.015
PARAMETER	UOM	LOR					
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	0.11

			BH112_0.00-0.10	BH1M_0.10-0.20	BH1M_1.00-1.10	BH2M_0.10-0.20	BH2M_1.00-1.10
			SOIL - 2/12/2024 SE275489.016	SOIL - 3/12/2024 SE275489.017	SOIL - 3/12/2024 SE275489.018	SOIL - 2/12/2024 SE275489.019	SOIL - 2/12/2024 SE275489.020
PARAMETER	UOM	LOR					
Mercury	mg/kg	0.05	0.05	<0.05	<0.05	<0.05	<0.05

			QD
			SOIL - 2/12/2024 SE275489.022
PARAMETER	UOM	LOR	
Mercury	mg/kg	0.05	<0.05



ANALYTICAL RESULTS

SE275489 R0

Moisture Content [AN002] Tested: 10/12/2024

			BH101_0.10-0.20	BH101_0.60-0.70	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.001	SE275489.002	SE275489.003	SE275489.004	SE275489.005
% Moisture	%w/w	1	19.4	13.4	14.0	21.8	7.1

			BH105_0.20-0.30	BH105_0.70-0.80	BH106_0.20-0.30	BH106_0.70-0.80	BH107_0.20-0.30
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.006	SE275489.007	SE275489.008	SE275489.009	SE275489.010
% Moisture	%w/w	1	8.4	10.1	10.6	20.2	7.9

			BH107_0.70-0.80	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40	BH111_0.10-0.20
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	2/12/2024	2/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.011	SE275489.012	SE275489.013	SE275489.014	SE275489.015
% Moisture	%w/w	1	16.7	18.8	9.0	9.5	20.2

			BH112_0.00-0.10	BH1M_0.10-0.20	BH1M_1.00-1.10	BH2M_0.10-0.20	BH2M_1.00-1.10
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			2/12/2024	3/12/2024	3/12/2024	2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.016	SE275489.017	SE275489.018	SE275489.019	SE275489.020
% Moisture	%w/w	1	20.0	11.9	15.2	9.0	12.1

			QD	QTB1
			SOIL	SOIL
			-	-
			2/12/2024	2/12/2024
PARAMETER	UOM	LOR	SE275489.022	SE275489.023
% Moisture	%w/w	1	18.1	<1.0



ANALYTICAL RESULTS

SE275489 R0

Fibre Identification in soil [AS4964/AN602] Tested: 10/12/2024

			BH101_0.10-0.20	BH102_0.20-0.30	BH103_0.20-0.30	BH104_0.20-0.30	BH105_0.20-0.30
			SOIL - 2/12/2024 SE275489.001	SOIL - 2/12/2024 SE275489.003	SOIL - 2/12/2024 SE275489.004	SOIL - 2/12/2024 SE275489.005	SOIL - 2/12/2024 SE275489.006
PARAMETER	UOM	LOR					
Date Analysed*	No unit	-	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00
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

			BH106_0.20-0.30	BH107_0.20-0.30	BH108_0.00-0.10	BH109_0.30-0.40	BH110_0.30-0.40
			SOIL - 2/12/2024 SE275489.008	SOIL - 2/12/2024 SE275489.010	SOIL - 2/12/2024 SE275489.012	SOIL - 2/12/2024 SE275489.013	SOIL - 2/12/2024 SE275489.014
PARAMETER	UOM	LOR					
Date Analysed*	No unit	-	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00
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

			BH111_0.10-0.20	BH112_0.00-0.10	BH1M_0.10-0.20	BH2M_0.10-0.20
			SOIL - 2/12/2024 SE275489.015	SOIL - 2/12/2024 SE275489.016	SOIL - 3/12/2024 SE275489.017	SOIL - 2/12/2024 SE275489.019
PARAMETER	UOM	LOR				
Date Analysed*	No unit	-	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00	12/12/2024 00:00
Asbestos Detected	No unit	-	No	Yes	No	No
Estimated Fibres*	%w/w	0.01	<0.01	>0.01	<0.01	<0.01



ANALYTICAL RESULTS

SE275489 R0

VOCs in Water [AN433] Tested: 10/12/2024

			QR
			WATER
			-
			2/12/2024
			SE275489.021
PARAMETER	UOM	LOR	
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 (VOC)*	µg/L	0.5	<0.5



ANALYTICAL RESULTS

SE275489 R0

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 10/12/2024

			QR
			WATER
			-
			2/12/2024
PARAMETER	UOM	LOR	SE275489.021
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



ANALYTICAL RESULTS

SE275489 R0

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 10/12/2024

			QR
			WATER
			-
			2/12/2024
			SE275489.021
PARAMETER	UOM	LOR	
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	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320



ANALYTICAL RESULTS

SE275489 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 10/12/2024

			QR
			WATER
			-
			2/12/2024
			SE275489.021
PARAMETER	UOM	LOR	
Arsenic	µg/L	1	<1
Cadmium	µg/L	0.1	<0.1
Chromium	µg/L	1	<1
Copper	µg/L	1	<1
Lead	µg/L	1	<1
Nickel	µg/L	1	<1
Zinc	µg/L	5	<5



ANALYTICAL RESULTS

SE275489 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 11/12/2024

			QR
			WATER
			-
			2/12/2024
			SE275489.021
PARAMETER	UOM	LOR	
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 AAS or ICP as per USEPA Method 200.8.
AN311(Perth)/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,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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 Recoverable Hydrocarbons - Silica (TRH-Si) 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). Total PAH calculated from individual analyte detections at or above the limit of reporting .
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	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/AS4964	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/AS4964	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602/AS4964	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/reporting limit (RL) 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/AS4964

The sample can be reported "no asbestos found at the reporting limit (RL) 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.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
		IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
***	Indicates that both * and ** apply.	LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT



Accreditation No. 2562

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Order Number **E26489**
Samples **14**

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SGS Reference **SE275489 R0**
Date Received **05 Dec 2024**
Date Reported **12 Dec 2024**

COMMENTS

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

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

Sample #17: A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.

Sample #16: Chrysotile and Amosite asbestos found in approx 20x10x5mm cement sheet fragment.

Sample #19: Chrysotile and Amosite asbestos found as approx 5x5x2mm fibrous mass below the RL of 0.1g/kg.

Asbestos analysed by Approved Identifier Cameron Smith.

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader



ANALYTICAL REPORT

SE275489 R0

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Date Analysed	Fibre Identification	Est.%w/w*
SE275489.001	BH101_0.10-0.20	Soil	114g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.003	BH102_0.20-0.30	Soil	132g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.004	BH103_0.20-0.30	Soil	198g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.005	BH104_0.20-0.30	Soil	199g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.006	BH105_0.20-0.30	Soil	154g Clay, Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE275489.008	BH106_0.20-0.30	Soil	142g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.010	BH107_0.20-0.30	Soil	145g Clay, Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.012	BH108_0.00-0.10	Soil	102g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.013	BH109_0.30-0.40	Soil	118g Clay, Sand, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.014	BH110_0.30-0.40	Soil	138g Clay, Sand, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE275489.015	BH111_0.10-0.20	Soil	114g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE275489.016	BH112_0.00-0.10	Soil	114g Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	Amosite & Chrysotile Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	>0.01
SE275489.017	BH1M_0.10-0.20	Soil	87g Clay, Sand, Soil, Rocks	03 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE275489.019	BH2M_0.10-0.20	Soil	106g Clay, Sand, Soil, Rocks	02 Dec 2024	12 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01

METHOD

METHODOLOGY SUMMARY

AN602/AS4964	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/AS4964	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602/AS4964	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/reporting limit (RL) 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/AS4964	The sample can be reported "no asbestos found at the reporting limit (RL) 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.
			***	-	Indicates that both * and ** apply.

(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.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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Project **E26489 159-167 Darley Street West, Mona V**
Order Number **E26489**
Samples 2

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SGS Reference **SE276055 R0**
Date Received 18/12/2024
Date Reported 24/12/2024

COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Cameron Smith.

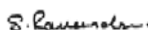
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Ravee SIVASUBRAMANIAM
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Shane MCDERMOTT
Laboratory Manager



Teresa NGUYEN
Organic Chemist



ANALYTICAL RESULTS

SE276055 R0

VOC's in Soil [AN433] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
			SE276055.001
PARAMETER	UOM	LOR	
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
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1



ANALYTICAL RESULTS

SE276055 R0

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276055.001
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25



ANALYTICAL RESULTS

SE276055 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276055.001
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-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210



ANALYTICAL RESULTS

SE276055 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276055.001
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(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(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	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
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8



ANALYTICAL RESULTS

SE276055 R0

PCBs in Soil [AN420] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276055.001
Arochlor 1016	mg/kg	0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1



ANALYTICAL RESULTS

SE276055 R0

OC Pesticides in Soil [AN420] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276055.001
Alpha BHC	mg/kg	0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.1	<0.1
Endrin	mg/kg	0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1



ANALYTICAL RESULTS

SE276055 R0

OP Pesticides in Soil [AN420] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276055.001
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
Total OP Pesticides*	mg/kg	1.7	<1.7



ANALYTICAL RESULTS

SE276055 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
			SE276055.001
PARAMETER	UOM	LOR	
Arsenic, As	mg/kg	1	2
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.5	7.1
Copper, Cu	mg/kg	0.5	1.2
Lead, Pb	mg/kg	1	5
Nickel, Ni	mg/kg	0.5	1.0
Zinc, Zn	mg/kg	2	3.1



ANALYTICAL RESULTS

SE276055 R0

Mercury in Soil [AN312] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
			SE276055.001
PARAMETER	UOM	LOR	
Mercury	mg/kg	0.05	<0.05



ANALYTICAL RESULTS

SE276055 R0

Moisture Content [AN002] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
			SE276055.001
PARAMETER	UOM	LOR	
% Moisture	%w/w	1	9.0



ANALYTICAL RESULTS

SE276055 R0

Fibre Identification in soil [AS4964/AN602] Tested: 19/12/2024

			BH3M_0.3-0.4
			SOIL
			-
			17/12/2024
			SE276055.001
PARAMETER	UOM	LOR	
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01
Date Analysed*	No unit	-	20/12/2024 00:00

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.
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 AAS or ICP as per USEPA Method 200.8.
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
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 Recoverable Hydrocarbons - Silica (TRH-Si) 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). Total PAH calculated from individual analyte detections at or above the limit of reporting.
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	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/AS4964	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/AS4964	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602/AS4964	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/reporting limit (RL) 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/AS4964	The sample can be reported "no asbestos found at the reporting limit (RL) 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.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been 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 $\pm$ 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:

- 1 Bq is equivalent to 27 pCi
- 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT



Accreditation No. 2562

CLIENT DETAILS

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Order Number **E26489**
Samples 1

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SGS Reference **SE276055 R0**
Date Received 18 Dec 2024
Date Reported 24 Dec 2024

COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Cameron Smith.

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader



ANALYTICAL REPORT

SE276055 R0

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Date Analysed	Fibre Identification	Est.%w/w*
SE276055.001	BH3M_0.3-0.4	Soil	159g Sand, Soil, Rocks	17 Dec 2024	20 Dec 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01

METHOD

METHODOLOGY SUMMARY

AN602/AS4964	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/AS4964	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602/AS4964	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/reporting limit (RL) 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/AS4964	The sample can be reported "no asbestos found at the reporting limit (RL) 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.
			***	-	Indicates that both * and ** apply.

(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.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT



Accreditation No. 2562

CLIENT DETAILS

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Project **E26489 159-167 Darley Street West, Mona**
Order Number **E26489**
Samples **1**

LABORATORY DETAILS

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SGS Reference **SE276056 R0**
Date Received **18/12/2024**
Date Reported **24/12/2024**

COMMENTS

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

SIGNATORIES

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Laboratory Manager



ANALYTICAL RESULTS

SE276056 R0

VOC's in Soil [AN433] Tested: 19/12/2024

			BH3M.1.7-1.8
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276056.001
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
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1



ANALYTICAL RESULTS

SE276056 R0

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 19/12/2024

			BH3M.1.7-1.8
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276056.001
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25



ANALYTICAL RESULTS

SE276056 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 19/12/2024

			BH3M.1.7-1.8
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276056.001
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-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210



ANALYTICAL RESULTS

SE276056 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 19/12/2024

			BH3M.1.7-1.8
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276056.001
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(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(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	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
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8



ANALYTICAL RESULTS

SE276056 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 19/12/2024

			BH3M.1.7-1.8
			SOIL
			-
			17/12/2024
			SE276056.001
PARAMETER	UOM	LOR	
Arsenic, As	mg/kg	1	1
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.5	7.2
Copper, Cu	mg/kg	0.5	1.3
Lead, Pb	mg/kg	1	2
Nickel, Ni	mg/kg	0.5	0.5
Zinc, Zn	mg/kg	2	<2.0



ANALYTICAL RESULTS

SE276056 R0

Mercury in Soil [AN312] Tested: 19/12/2024

			BH3M.1.7-1.8
			SOIL
			-
			17/12/2024
PARAMETER	UOM	LOR	SE276056.001
Mercury	mg/kg	0.05	<0.05



ANALYTICAL RESULTS

SE276056 R0

Moisture Content [AN002] Tested: 19/12/2024

			BH3M.1.7-1.8
			SOIL
			-
			17/12/2024
			SE276056.001
PARAMETER	UOM	LOR	
% Moisture	%w/w	1	16.7

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.

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 AAS or ICP as per USEPA Method 200.8.

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

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 Recoverable Hydrocarbons - Silica (TRH-Si) 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).

Total PAH calculated from individual analyte detections at or above the limit of reporting.

AN420

Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all <LOR results are half the LOR and the third assuming all <LOR results are the LOR.

AN433

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.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been 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 $\pm$ 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:

- 1 Bq is equivalent to 27 pCi
- 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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CERTIFICATE OF ANALYSIS 368389

Client Details

Client	El Australia
Attention	Lab Email
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	<u>E26489 - 159-167 Darley Street West, Mona Vale</u>
Number of Samples	1 Soil
Date samples received	06/12/2024
Date completed instructions received	06/12/2024

Analysis Details

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

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

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

Report Details

Date results requested by	13/12/2024
Date of Issue	12/12/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Giovanni Agosti, Group Technical Manager
Liam Timmins, Organics Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		368389-1
Your Reference	UNITS	QT1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	10/12/2024
Date analysed	-	11/12/2024
TRH C ₆ - C ₉	mg/kg	<25
TRH C ₆ - C ₁₀	mg/kg	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	89

svTRH (C10-C40) in Soil		
Our Reference		368389-1
Your Reference	UNITS	QT1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	10/12/2024
Date analysed	-	11/12/2024
TRH C ₁₀ - C ₁₄	mg/kg	55
TRH C ₁₅ - C ₂₈	mg/kg	1,300
TRH C ₂₉ - C ₃₆	mg/kg	660
Total +ve TRH (C10-C36)	mg/kg	2,000
TRH >C ₁₀ -C ₁₆	mg/kg	110
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	110
TRH >C ₁₆ -C ₃₄	mg/kg	1,700
TRH >C ₃₄ -C ₄₀	mg/kg	450
Total +ve TRH (>C10-C40)	mg/kg	2,300
Surrogate o-Terphenyl	%	112

Acid Extractable metals in soil		
Our Reference		368389-1
Your Reference	UNITS	QT1
Date Sampled		02/12/2024
Type of sample		Soil
Date prepared	-	10/12/2024
Date analysed	-	11/12/2024
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	9
Copper	mg/kg	7
Lead	mg/kg	26
Mercury	mg/kg	<0.1
Nickel	mg/kg	1
Zinc	mg/kg	53

Moisture		
Our Reference	UNITS	368389-1
Your Reference		QT1
Date Sampled		02/12/2024
Type of sample		Soil
Date prepared	-	10/12/2024
Date analysed	-	11/12/2024
Moisture	%	15

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	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.
Org-020	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. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			10/12/2024	[NT]	[NT]	[NT]	[NT]	10/12/2024	[NT]
Date analysed	-			11/12/2024	[NT]	[NT]	[NT]	[NT]	11/12/2024	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	99	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	95	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	94	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			10/12/2024	[NT]	[NT]	[NT]	[NT]	10/12/2024	[NT]
Date analysed	-			11/12/2024	[NT]	[NT]	[NT]	[NT]	11/12/2024	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	89	[NT]	[NT]	[NT]	[NT]	89	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			10/12/2024	[NT]	[NT]	[NT]	[NT]	10/12/2024	[NT]
Date analysed	-			11/12/2024	[NT]	[NT]	[NT]	[NT]	11/12/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	114	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	122	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

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: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-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.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.



ANALYTICAL REPORT



Accreditation No. 2562

CLIENT DETAILS

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Project **E26489 159-167 Pasley St West Mona Vale**
Order Number **E26489**
Samples **8**

LABORATORY DETAILS

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SGS Reference **SE276733 R0**
Date Received **14/1/2025**
Date Reported **29/1/2025**

COMMENTS

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

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head



ANALYTICAL RESULTS

SE276733 R0

VOCs in Water [AN433] Tested: 15/1/2025

PARAMETER	UOM	LOR	BH1M	BH2M	BH3M	GW-QD1	GW-QR1
			WATER - 14/1/2025 SE276733.001	WATER - 14/1/2025 SE276733.002	WATER - 14/1/2025 SE276733.003	WATER - 14/1/2025 SE276733.004	WATER - 14/1/2025 SE276733.005
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 (VOC)*	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	-	-
Chloromethane	µg/L	5	<5	<5	<5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	-	-
Bromomethane	µg/L	10	<10	<10	<10	-	-
Chloroethane	µg/L	5	<5	<5	<5	-	-
Trichlorofluoromethane	µg/L	1	<1	<1	<1	-	-
Acetone (2-propanone)	µg/L	10	<10	<10	<10	-	-
Iodomethane	µg/L	5	<5	<5	<5	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	-	-
Allyl chloride	µg/L	2	<2	<2	<2	-	-
Carbon disulfide	µg/L	2	<2	<2	<2	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Vinyl acetate*	µg/L	10	<10	<10	<10	-	-
MEK (2-butanone)	µg/L	10	<10	<10	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	2.5	1.3	<0.5	-	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-nitropropane	µg/L	100	<100	<100	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	0.5	<0.5	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-hexanone (MBK)	µg/L	5	<5	<5	<5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-



ANALYTICAL RESULTS

SE276733 R0

VOCs in Water [AN433] Tested: 15/1/2025 (continued)

			BH1M	BH2M	BH3M	GW-QD1	GW-QR1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			14/1/2025	14/1/2025	14/1/2025	14/1/2025	14/1/2025
PARAMETER	UOM	LOR	SE276733.001	SE276733.002	SE276733.003	SE276733.004	SE276733.005
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Total VOC	µg/L	10	<10	<10	<10	-	-



ANALYTICAL RESULTS

SE276733 R0

VOCs in Water [AN433] Tested: 15/1/2025 (continued)

PARAMETER	UOM	LOR	GW-QTB1	GW-QTS1
			WATER - 14/1/2025 SE276733.007	WATER - 14/1/2025 SE276733.008
Benzene	µg/L	0.5	<0.5	[129%]
Toluene	µg/L	0.5	<0.5	[128%]
Ethylbenzene	µg/L	0.5	<0.5	[99%]
m/p-xylene	µg/L	1	<1	[99%]
o-xylene	µg/L	0.5	<0.5	[99%]
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-
Naphthalene (VOC)*	µg/L	0.5	<0.5	[98%]
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	0.5	-	-
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	-	-
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	-	-
Isopropylbenzene (Cumene)	µg/L	0.5	-	-



ANALYTICAL RESULTS

SE276733 R0

VOCs in Water [AN433] Tested: 15/1/2025 (continued)

			GW-QTB1	GW-QTS1
			WATER	WATER
			-	-
			14/1/2025	14/1/2025
			SE276733.007	SE276733.008
PARAMETER	UOM	LOR		
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	-	-



ANALYTICAL RESULTS

SE276733 R0

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 15/1/2025

			BH1M	BH2M	BH3M	GW-QD1	GW-QR1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			14/1/2025	14/1/2025	14/1/2025	14/1/2025	14/1/2025
PARAMETER	UOM	LOR	SE276733.001	SE276733.002	SE276733.003	SE276733.004	SE276733.005
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



ANALYTICAL RESULTS

SE276733 R0

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 16/1/2025

			BH1M	BH2M	BH3M	GW-QD1	GW-QR1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			14/1/2025	14/1/2025	14/1/2025	14/1/2025	14/1/2025
PARAMETER	UOM	LOR	SE276733.001	SE276733.002	SE276733.003	SE276733.004	SE276733.005
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	µg/L	60	<60	<60	<60	<60	<60
TRH >C10-C16 - Naphthalene (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-C40	µg/L	320	<320	<320	<320	<320	<320



ANALYTICAL RESULTS

SE276733 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 16/1/2025

			BH1M	BH2M	BH3M
			WATER	WATER	WATER
			-	-	-
			14/1/2025	14/1/2025	14/1/2025
			SE276733.001	SE276733.002	SE276733.003
PARAMETER	UOM	LOR			
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1



ANALYTICAL RESULTS

SE276733 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 20/1/2025

			BH1M	BH2M	BH3M	GW-QD1	GW-QR1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			14/1/2025	14/1/2025	14/1/2025	14/1/2025	14/1/2025
PARAMETER	UOM	LOR	SE276733.001	SE276733.002	SE276733.003	SE276733.004	SE276733.005
Arsenic	µg/L	1	<1	<1	2	<1	<1
Cadmium	µg/L	0.1	0.1	0.1	0.5	0.1	<0.1
Chromium	µg/L	1	2	3	9	2	<1
Copper	µg/L	1	24	9	130	23	<1
Lead	µg/L	1	<1	1	3	<1	<1
Nickel	µg/L	1	29	66	180	27	<1
Zinc	µg/L	5	89	81	230	87	6



ANALYTICAL RESULTS

SE276733 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 15/1/2025

			BH1M	BH2M	BH3M	GW-QD1	GW-QR1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			14/1/2025	14/1/2025	14/1/2025	14/1/2025	14/1/2025
PARAMETER	UOM	LOR	SE276733.001	SE276733.002	SE276733.003	SE276733.004	SE276733.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<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.
AN311(Perth)/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,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
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 Recoverable Hydrocarbons - Silica (TRH-Silica) 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). Total PAH calculated from individual analyte detections at or above the limit of reporting .
AN433	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.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been 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 $\pm$ 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:

- 1 Bq is equivalent to 27 pCi
- 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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CERTIFICATE OF ANALYSIS 370542

Client Details

Client	El Australia
Attention	Andrew Schmidt
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	<u>E26489, 159-167 Darley St West, Mona Vale</u>
Number of Samples	1 Water
Date samples received	15/01/2025
Date completed instructions received	21/01/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	24/01/2025
Date of Issue	24/01/2025
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		370542-1
Your Reference	UNITS	GW-QT1
Date Sampled		14/01/2025
Type of sample		Water
Date extracted	-	21/01/2025
Date analysed	-	22/01/2025
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
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	%	93
Surrogate Toluene-d8	%	88
Surrogate 4-Bromofluorobenzene	%	89

svTRH (C10-C40) in Water		
Our Reference		370542-1
Your Reference	UNITS	GW-QT1
Date Sampled		14/01/2025
Type of sample		Water
Date extracted	-	22/01/2025
Date analysed	-	23/01/2025
TRH C ₁₀ - C ₁₄	µg/L	<50
TRH C ₁₅ - C ₂₈	µg/L	<100
TRH C ₂₉ - C ₃₆	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
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
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	60

HM in water - dissolved		
Our Reference	UNITS	370542-1
Your Reference		GW-QT1
Date Sampled		14/01/2025
Type of sample		Water
Date prepared	-	22/01/2025
Date analysed	-	22/01/2025
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	0.1
Chromium-Dissolved	µg/L	2
Copper-Dissolved	µg/L	27
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	32
Zinc-Dissolved	µg/L	96

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	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.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	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.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			21/01/2025	1	21/01/2025	22/01/2025		21/01/2025	[NT]
Date analysed	-			22/01/2025	1	22/01/2025	23/01/2025		22/01/2025	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	1	<10	<10	0	85	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	1	<10	<10	0	85	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	94	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	80	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	84	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	84	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	82	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	90	1	93	104	11	91	[NT]
Surrogate Toluene-d8	%		Org-023	87	1	88	100	13	87	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	89	1	89	98	10	92	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/01/2025	[NT]	[NT]	[NT]	[NT]	22/01/2025	[NT]
Date analysed	-			23/01/2025	[NT]	[NT]	[NT]	[NT]	23/01/2025	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	101	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	125	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	101	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	125	[NT]
Surrogate o-Terphenyl	%		Org-020	82	[NT]	[NT]	[NT]	[NT]	125	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date prepared	-			22/01/2025	[NT]	[NT]	[NT]	[NT]	22/01/2025	[NT]
Date analysed	-			22/01/2025	[NT]	[NT]	[NT]	[NT]	22/01/2025	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

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: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-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.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Appendix I -QA/QC Assessment

Table I-5 Summary of QA/QC results for Investigation samples

Sample Identification	Sampled Date	Description	TRH				BTEX				Heavy Metals							
			F1*	F2**	F3 (>C ₁₆ - C ₃₄)	F4 (>C ₃₄ - C ₄₀)	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
BH101_0.1-0.2	2/12/2024	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	4	<0.3	8.5	6.2	24	<0.05	2.7	47
QD1		Duplicate of BH101_0.1-0.2	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	3	<0.3	6.4	6	24	<0.05	1.4	46
RPD (%)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	28.2	3.3	0.0	0.0	63.4	2.2
BH1M	14/1/2025	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	0.1	2	24	<1	<0.1	29	89
GW-QD1		Duplicate of BH1M	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	0.1	2	23	<1	<0.1	27	87
RPD (%)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	7.1	2.3
Inter-laboratory Duplicate																		
BH101_0.1-0.2	2/12/2024	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	4	<0.3	8.5	6.2	24	<0.05	2.7	47
QT1		Duplicate of BH101_0.1-0.2	<25	110	1700	450	<0.2	<0.5	<1	<0.3	<4	<0.4	9	7	26	<0.1	1	53
RPD (%)			0.0	138.8	184.5	129.4	NA	NA	NA	0.0	0.0	NA	5.7	12.1	8.0	NA	91.9	12.0
BH1M	14/1/2025	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	0.1	2	24	<1	<0.1	29	89
GW-QT1		Duplicate of BH1M	<10	<50	<100	<100	<1	<1	<1	<3	<1	0.1	2	27	<1	<0.05	32	96
RPD (%)			NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	11.8	0.0	NA	9.8	7.6
QTB1	2/12/2024	Trip blank	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
QTS1		Trip spike	-	-	-	-	[129%]	[109%]	[105%]	[103%]	-	-	-	-	-	-	-	-
QR1		Rinsate	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5
GW-QTB1	14/01/2025	Trip blank	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
GW-QTS1		Trip spike	-	-	-	-	[129%]	[128%]	[99%]	[99%]	-	-	-	-	-	-	-	-
GW-QR1		Rinsate	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	6

Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.

RPD exceeds 30-50% range referenced from AS4482.1 (2005)

NOTE:

All soil results are reported in mg/kg . All water results are reported in µg/L.

* - to obtain F1 subtract the sum of BTEX concentrations from the C₆-C₁₀ fraction

** - to obtain F2 subtract naphthalene from the > C₁₀-C₁₆ fraction

I1 Overview of QA/QC Program

Quality assurance comprises an assessment of the reliability of the field procedures and laboratory results against standard industry practices and the SAQP. An overview of the project QA/QC measures incorporated into this investigation is presented in **Table I-1**.

Table I-1 QA/QC Protocols

Task	Description	Project
Field QA/QC		
General	Work was undertaken following standard field procedures which are based on industry accepted standard practice.	Soil samples were collected directly off drilling rods or hand auger or hand trowel. Soil samples were placed in 250 gram glass jars, which were filled to minimise headspace, and sealed using Teflon-coated lids.
	All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.	Yes
Rinsate Sample	Two rinsate samples were collected and analysed for the primary contaminants.	The results for rinsate samples of QR1 and GM-QR1 were all reported below laboratory PQL.
Transport	Samples were stored in a chilled (with ice bricks) cooler box and transported to the laboratories. To ensure their integrity from collection to laboratory receipt, samples were sent by courier to the laboratories under 'chain of custody' describing sample preservation and transport.	Yes
Trip Blank	Laboratory-prepared trip blank sample to be analysed for BTEX. Ideally, analytical results were to be below the LOR, indicating satisfactory sample transport and handling conditions (i.e. no cross-contamination of volatiles).	One trip blank sample was collected from each sampling event (QTB1 & GW-QTB1), prepared by SGS, was analysed for BTEX. The results were all reported <LOR, indicating satisfactory sample transport and handling conditions were achieved (i.e. no cross-contamination of volatiles during transport).
Trip Spike	Laboratory-prepared trip spike sample to be analysed for BTEX. Ideally, analytical results (recoveries) were to be 80-120%, indicating satisfactory sample transport and handling conditions (i.e. no loss of volatiles).	One trip spike sample was collected from each sampling event (QTS1 & GW-QTS1), prepared by SGS, was analysed for BTEX. The recoveries were within the adopted DQI, indicating satisfactory sample transport and handling conditions were achieved (i.e. no loss of volatiles during transport).
Duplicates	Field (blind / split) duplicates were to be analysed as follows: Intra-laboratory and inter-laboratory duplicates collected at a rate of one pair per 20 primary samples.	Results for field duplicates, with calculated RPD values, are presented in Table 2, Appendix B . Generally, RPD values complied with the DQI and variability was explained by sample (fill) heterogeneity and/or low analyte concentrations.

Task	Description	Project
Laboratory QA/QC		
Laboratory Analysis	The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs.	Yes SGS - primary laboratory Envirolab - secondary laboratory Laboratory QA/QC analyses performed as per NATA accreditation requirements.
	Appropriate detection limits were used for the analyses to be undertaken.	PQLs for all tested parameters are presented in Appendix H .
	Methods followed are generally in accordance with the requirements of NEPC (2013).	Yes
Holding Times	Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses should be completed within standard guidelines.	Assessment of holding times has been undertaken by the laboratory. No non-compliance.
Method Blanks	Each analysis procedure should include a method blank sample. The method blank contains the reagents used to prepare each sample for the given analysis. The purpose is to identify (check) contamination in the reagent materials and thereby assess potential bias. The results of each method blank should be <LOR.	Assessment of method blanks has been undertaken by the laboratory. No non-compliance.
Laboratory Duplicates	Laboratory duplicates are field samples from the same batch that are analysed a number of times. They are randomly selected by the laboratory at a frequency of 1 per 10 primary samples, in order to assess precision of the analytical method.	Assessment of laboratory duplicates has been undertaken by the laboratory. Calculated RPDs generally within acceptable ranges. The following duplicates exceeded acceptance criteria due to heterogeneity (although results were within 5 times LOR): - LB258075.025
Laboratory Control Standards	A laboratory control standard is a standard reference material used to prepare primary standards. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. Laboratory control samples should be performed on a frequency of 1 per 20 samples or at least one per analytical run.	Assessment of laboratory control standards has been undertaken by the laboratory. No non-compliance.

Task	Description	Project
Matrix Spikes / Matrix Spike Duplicates	Matrix spikes are field samples to which a predetermined stock solution of known concentration has been added. The samples are then analysed for recovery of the known addition. Recoveries should be within the limits of 70-130% and duplicates should have RPDs of less than 50%.	Assessment of matrix spikes a has been undertaken by the laboratory. No non-compliance
Surrogate Spikes	Surrogate spikes provide a means of checking, for every analysis that no gross errors have occurred at any stage of the procedure leading to significant analyte loss. Recoveries should be within 70-130%.	Assessment of surrogate spikes has been undertaken by the laboratory. No laboratory surrogate was outside recovery control limits:
QA/QC Conclusion	The QA/QC indicators should either all comply with the required standards or show no variations that would have no significant effect on the quality of the data.	Assessment of the investigation QA/QC is presented in the following sections.

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.

The DQI was 30%. RPDs that exceed this range were considered acceptable where:

- Results were less than 10 times the limits of reporting (LOR);
- Results were less than 20 times the LOR and the RPD was less than 50%; or
- Heterogeneous materials or volatile compounds were encountered.

I2 Field QA/QC

The field QC samples collected during the investigation were as follows:

- Blind field (intra-laboratory) duplicate of BH101_0.4-0.5, identified as QD1 and analysed by the primary laboratory SGS;
- Split field (inter-laboratory) duplicate of BH101_0.4-0.5, identified as QT1 and analysed by the secondary laboratory, Envirolab;
- Trip blank (identified as QTB);
- Trip spike (identified as QTS); and
- Equipment rinsate blank (identified as QR1).

Analytical results for the tested QC samples, including calculated RPD values between primary and duplicate samples, are presented in the QC summary table (**Table 4, Appendix B**). A discussion of the corresponding (field) data quality indicators is presented in **Table I-2** below.

Table I-2 Field Data Quality Indicators

DQI	Item	Conformance
Precision Measure of the variability (or reproducibility) of data.	SOPs appropriate and complied with	Yes
Accuracy Quantitative measure of the closeness of reported data to the true values.	SOPs appropriate and complied with	Yes
	Calibration of instruments against known standards	Yes
Representativeness Confidence that the data are representative of each media present on the site.	Appropriate media sampled according to SAQP	Yes
	Each media identified in SAQP sampled	Yes
Completeness Percentage of useable data from sampling episode (set).	Each critical location sampled	Yes
	SAQP appropriate and complied with	Yes
	Appropriate number of field duplicate samples taken	Yes
	Experienced sampler	Yes
	Field documentation correct	Yes
Comparability Confidence [expressed qualitatively] that data may be considered to be equivalent for each sampling and analytical event.	Same sampling method used on each occasion/location	Yes
	Experienced sampler	Yes
	Same type of samples collected (filtered, size, fractions)	Yes

Conclusion for the Field QA/QC

All field work, including equipment decontamination and sample preservation and transport, was conducted in accordance with the SAQP and SOPs, which were devised with reference to industry-approved guidelines. Appropriate QC measures were integrated into each sampling event and the DQI were met, or if not, the variability was suitably justified.

All samples, including field QC samples, were transported to the primary and secondary laboratories under refrigerated conditions, using strict COC procedures. Relevant documents (COC forms) were presented with the samples at the times of delivery. All supporting documents (COCs and SRAs) were completed in full and signed, where appropriate. Copies of these were included in **Appendix G**. EI considered the field QA/QC program carried out during the investigation to be appropriate.

I3 Laboratory QA/QC

Primary and intra-laboratory duplicate samples were analysed by SGS (located in Alexandria NSW), with inter-laboratory duplicate samples analysed by Envirolab (located in Chatswood NSW). All laboratories are accredited by NATA for the analyses undertaken. A discussion of the laboratory DQIs is presented in **Table J-3** below.

Table J-3 Laboratory Data Quality Indicators

DQI	Item	Conformance
Completeness A measure of the amount of useable data (expressed as %) from a data collection activity	All critical samples analysed according to SAQP and proposal	Yes
	All analytes analysed according to SAQP in proposal	Yes
	Appropriate methods and PQLs	Yes
	Sample documentation complete	Yes
	Sample holding times complied with	Yes
Comparability The confidence (expressed qualitatively) that data are equivalent for each sampling and analytical event	Sample analytical methods used (including clean-up)	Yes
	Sample PQLs (justify/ quantify if different)	Yes
	Same laboratories (justify/ quantify if different)	Yes
	Same units (justify/ quantify if different)	Yes
Representativeness Confidence that data represent the media concerned	All key samples analysed according to SAQP in the proposal and standard SOPs	Yes
Precision A quantitative measure of the variability (or reproducibility) of data	Analysis of laboratory duplicates	Yes
	Analysis of field duplicates	Yes
	Analysis of laboratory-prepared volatile trip spikes	Yes
Accuracy A quantitative measure of the closeness of reported data to the true value	Analysis of field blanks	Yes
	Analysis of rinsate blanks	Yes
	Analysis of method blanks	Yes
	Analysis of matrix spikes (MS)	Yes
	Analysis of surrogate spikes	Yes
	Analysis of reference materials	Not applicable
	Analysis of laboratory control samples	Yes

Conclusions for the Laboratory QA/QC

All contracted laboratories (SGS and Envirolab) were accredited by NATA for the analyses undertaken. All analytical procedures used were industry recognised and endorsed standard methods. Appropriate QC measures were integrated into each testing batch and the DQI were met, or if not, the variability was suitably justified. All final reports were submitted in full and

included all requested analyses, as per the signed COC forms. EI considered the laboratory QA/QC programs carried out during the investigation to be appropriate

I4 Summary of Project QA/QC

The sampling (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation were consistent with EI protocols. The project DQO specified in **Section 5.2, Table 5-1** were considered to have been achieved. The adopted QA/QC program ensured that the data collated during the DSI were accurate, precise and representative of the site condition. It was therefore considered that the data were sufficiently precise and accurate and that the results could be used for interpretative purposes.

Appendix J -Laboratory QA/QC Policies and DQOs



STATEMENT OF QA/QC PERFORMANCE

SE275489 R0

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Andrew Schmidt	Manager	Shane McDermott
Client	EI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 95160722	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	andrew.schmidt@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	E26489 159-167 Darley St West Mona Vale	SGS Reference	SE275489 R0
Order Number	E26489	Date Received	05 Dec 2024
Samples	24	Date Reported	12 Dec 2024

COMMENTS		
All the laboratory data for each environmental matrix was compared to SGS' 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.		
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	TRH (Total Recoverable Hydrocarbons) in Water	1 item
Surrogate	VOC's in Soil	2 items
	Volatile Petroleum Hydrocarbons in Soil	2 items

SAMPLE SUMMARY			
Sample counts by matrix	23 Soil, 1 Water	Type of documentation received	COC
Date documentation received	05/12/2024@4:40pr	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.5°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		



HOLDING TIME SUMMARY

SE275489 R0

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

Fibre Identification in soil

Method: ME-(AU)-[ENV]AS4964/AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332760	03 Dec 2024	05 Dec 2024	03 Dec 2025	10 Dec 2024	03 Dec 2025	12 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332760	02 Dec 2024	05 Dec 2024	02 Dec 2025	10 Dec 2024	02 Dec 2025	12 Dec 2024

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR	SE275489.021	LB332861	02 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024	30 Dec 2024	12 Dec 2024

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332685	03 Dec 2024	05 Dec 2024	31 Dec 2024	10 Dec 2024	31 Dec 2024	12 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332685	03 Dec 2024	05 Dec 2024	31 Dec 2024	10 Dec 2024	31 Dec 2024	12 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332685	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332686	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024
QD	SE275489.022	LB332686	02 Dec 2024	05 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	12 Dec 2024

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024



HOLDING TIME SUMMARY

SE275489 R0

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

Moisture Content (continued)

Method: ME-(AU)-ENVJAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH112_0.00-0.10	SE275489.016	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332676	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332676	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332676	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332677	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
QD	SE275489.022	LB332677	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024
QTB1	SE275489.023	LB332677	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	15 Dec 2024	11 Dec 2024

OC Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
QD	SE275489.022	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024

OP Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
QD	SE275489.022	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024



HOLDING TIME SUMMARY

SE275489 R0

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]JAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH103_0.20-0.30	SE275489.004	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
QD	SE275489.022	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024

PCBs in Soil

Method: ME-(AU)-[ENV]JAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
QD	SE275489.022	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]JAN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024



HOLDING TIME SUMMARY

SE275489 R0

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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.10-0.20	SE275489.017	LB332681	03 Dec 2024	05 Dec 2024	01 Jun 2025	10 Dec 2024	01 Jun 2025	11 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332681	03 Dec 2024	05 Dec 2024	01 Jun 2025	10 Dec 2024	01 Jun 2025	11 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332681	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	11 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332682	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	12 Dec 2024
QD	SE275489.022	LB332682	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	12 Dec 2024

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
QR	SE275489.021	LB332713	02 Dec 2024	05 Dec 2024	31 May 2025	10 Dec 2024	31 May 2025	12 Dec 2024

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
BH101_0.10-0.20	SE275489.001	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332666	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332666	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024
QD	SE275489.022	LB332669	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	19 Jan 2025	12 Dec 2024

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
QR	SE275489.021	LB332668	02 Dec 2024	05 Dec 2024	09 Dec 2024	10 Dec 2024†	19 Jan 2025	12 Dec 2024

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332672	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332672	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	17 Dec 2024	11 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024



HOLDING TIME SUMMARY

SE275489 R0

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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

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QD	SE275489.022	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
QTB1	SE275489.023	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
QTS1	SE275489.024	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024

VOCs in Water

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR	SE275489.021	LB332701	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.10-0.20	SE275489.001	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH101_0.60-0.70	SE275489.002	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH102_0.20-0.30	SE275489.003	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH103_0.20-0.30	SE275489.004	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH104_0.20-0.30	SE275489.005	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH105_0.20-0.30	SE275489.006	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH105_0.70-0.80	SE275489.007	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH106_0.20-0.30	SE275489.008	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH106_0.70-0.80	SE275489.009	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH107_0.20-0.30	SE275489.010	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH107_0.70-0.80	SE275489.011	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH108_0.00-0.10	SE275489.012	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH109_0.30-0.40	SE275489.013	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH110_0.30-0.40	SE275489.014	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH111_0.10-0.20	SE275489.015	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH112_0.00-0.10	SE275489.016	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH1M_0.10-0.20	SE275489.017	LB332672	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	17 Dec 2024	11 Dec 2024
BH1M_1.00-1.10	SE275489.018	LB332672	03 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024	17 Dec 2024	11 Dec 2024
BH2M_0.10-0.20	SE275489.019	LB332672	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
BH2M_1.00-1.10	SE275489.020	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
QD	SE275489.022	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
QTB1	SE275489.023	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024
QTS1	SE275489.024	LB332673	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR	SE275489.021	LB332701	02 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024	16 Dec 2024	11 Dec 2024



SURROGATES

SE275489 R0

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 identifier 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]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	92
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	93
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	94
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	94
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	91
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	92
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	95
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	92
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	94
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	95
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	92
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	94
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	94
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	98

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	93
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	90
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	95
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	97
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	95
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	95
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	100
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	95
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	99
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	101
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	96
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	98
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	95
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	101
d14-p-terphenyl (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	95
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	98
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	97
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	99
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	94
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	95
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	101
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	97
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	99
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	100
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	96
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	98
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	95
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	101

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH101_0.10-0.20	SE275489.001	%	70 - 130%	93
	BH101_0.60-0.70	SE275489.002	%	70 - 130%	93
	BH102_0.20-0.30	SE275489.003	%	70 - 130%	90
	BH103_0.20-0.30	SE275489.004	%	70 - 130%	95
	BH104_0.20-0.30	SE275489.005	%	70 - 130%	97
	BH105_0.20-0.30	SE275489.006	%	70 - 130%	95
	BH105_0.70-0.80	SE275489.007	%	70 - 130%	94
	BH106_0.20-0.30	SE275489.008	%	70 - 130%	95
	BH106_0.70-0.80	SE275489.009	%	70 - 130%	87
	BH107_0.20-0.30	SE275489.010	%	70 - 130%	100
	BH107_0.70-0.80	SE275489.011	%	70 - 130%	96
	BH108_0.00-0.10	SE275489.012	%	70 - 130%	95
	BH109_0.30-0.40	SE275489.013	%	70 - 130%	99
	BH110_0.30-0.40	SE275489.014	%	70 - 130%	101



SURROGATES

SE275489 R0

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 identifier 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)	BH111_0.10-0.20	SE275489.015	%	70 - 130%	96
	BH112_0.00-0.10	SE275489.016	%	70 - 130%	98
	BH1M_0.10-0.20	SE275489.017	%	70 - 130%	95
	BH1M_1.00-1.10	SE275489.018	%	70 - 130%	98
	BH2M_0.10-0.20	SE275489.019	%	70 - 130%	101
	BH2M_1.00-1.10	SE275489.020	%	70 - 130%	100
d14-p-terphenyl (Surrogate)	BH101_0.10-0.20	SE275489.001	%	70 - 130%	95
	BH101_0.60-0.70	SE275489.002	%	70 - 130%	98
	BH102_0.20-0.30	SE275489.003	%	70 - 130%	98
	BH103_0.20-0.30	SE275489.004	%	70 - 130%	97
	BH104_0.20-0.30	SE275489.005	%	70 - 130%	99
	BH105_0.20-0.30	SE275489.006	%	70 - 130%	94
	BH105_0.70-0.80	SE275489.007	%	70 - 130%	95
	BH106_0.20-0.30	SE275489.008	%	70 - 130%	95
	BH106_0.70-0.80	SE275489.009	%	70 - 130%	88
	BH107_0.20-0.30	SE275489.010	%	70 - 130%	101
	BH107_0.70-0.80	SE275489.011	%	70 - 130%	97
	BH108_0.00-0.10	SE275489.012	%	70 - 130%	97
	BH109_0.30-0.40	SE275489.013	%	70 - 130%	99
	BH110_0.30-0.40	SE275489.014	%	70 - 130%	100
	BH111_0.10-0.20	SE275489.015	%	70 - 130%	96
	BH112_0.00-0.10	SE275489.016	%	70 - 130%	98
	BH1M_0.10-0.20	SE275489.017	%	70 - 130%	95
	BH1M_1.00-1.10	SE275489.018	%	70 - 130%	97
	BH2M_0.10-0.20	SE275489.019	%	70 - 130%	101
	BH2M_1.00-1.10	SE275489.020	%	70 - 130%	94
d5-nitrobenzene (Surrogate)	BH101_0.10-0.20	SE275489.001	%	70 - 130%	83
	BH101_0.60-0.70	SE275489.002	%	70 - 130%	83
	BH102_0.20-0.30	SE275489.003	%	70 - 130%	79
	BH103_0.20-0.30	SE275489.004	%	70 - 130%	86
	BH104_0.20-0.30	SE275489.005	%	70 - 130%	87
	BH105_0.20-0.30	SE275489.006	%	70 - 130%	84
	BH105_0.70-0.80	SE275489.007	%	70 - 130%	83
	BH106_0.20-0.30	SE275489.008	%	70 - 130%	83
	BH106_0.70-0.80	SE275489.009	%	70 - 130%	77
	BH107_0.20-0.30	SE275489.010	%	70 - 130%	87
	BH107_0.70-0.80	SE275489.011	%	70 - 130%	83
	BH108_0.00-0.10	SE275489.012	%	70 - 130%	82
	BH109_0.30-0.40	SE275489.013	%	70 - 130%	86
	BH110_0.30-0.40	SE275489.014	%	70 - 130%	87
	BH111_0.10-0.20	SE275489.015	%	70 - 130%	83
	BH112_0.00-0.10	SE275489.016	%	70 - 130%	87
	BH1M_0.10-0.20	SE275489.017	%	70 - 130%	85
	BH1M_1.00-1.10	SE275489.018	%	70 - 130%	89
	BH2M_0.10-0.20	SE275489.019	%	70 - 130%	89
	BH2M_1.00-1.10	SE275489.020	%	70 - 130%	93

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	92
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	93
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	94
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	94
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	91
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	92
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	95
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	92
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	94
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	95
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	92
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	94



SURROGATES

SE275489 R0

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 identifier 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]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	94
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	98

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	91
	BH101_0.60-0.70	SE275489.002	%	60 - 130%	74
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	71
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	74
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	73
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	75
	BH105_0.70-0.80	SE275489.007	%	60 - 130%	65
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	67
	BH106_0.70-0.80	SE275489.009	%	60 - 130%	70
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	67
	BH107_0.70-0.80	SE275489.011	%	60 - 130%	84
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	68
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	64
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	83
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	91
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	85
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	68
	BH1M_1.00-1.10	SE275489.018	%	60 - 130%	71
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	67
	BH2M_1.00-1.10	SE275489.020	%	60 - 130%	80
	QD	SE275489.022	%	60 - 130%	83
	QTB1	SE275489.023	%	60 - 130%	99
	QTS1	SE275489.024	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	108
	BH101_0.60-0.70	SE275489.002	%	60 - 130%	63
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	73
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	111
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	83
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	84
	BH105_0.70-0.80	SE275489.007	%	60 - 130%	82
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	90
	BH106_0.70-0.80	SE275489.009	%	60 - 130%	121
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	113
	BH107_0.70-0.80	SE275489.011	%	60 - 130%	63
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	83
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	87
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	107
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	176 ↑
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	83
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	80
	BH1M_1.00-1.10	SE275489.018	%	60 - 130%	127
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	86
	BH2M_1.00-1.10	SE275489.020	%	60 - 130%	101
	QD	SE275489.022	%	60 - 130%	99
	QTB1	SE275489.023	%	60 - 130%	121
	QTS1	SE275489.024	%	60 - 130%	101
d8-toluene (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	105
	BH101_0.60-0.70	SE275489.002	%	60 - 130%	88
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	93
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	92
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	118
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	98
	BH105_0.70-0.80	SE275489.007	%	60 - 130%	112
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	112
	BH106_0.70-0.80	SE275489.009	%	60 - 130%	95
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	104



SURROGATES

SE275489 R0

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 identifier 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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH107_0.70-0.80	SE275489.011	%	60 - 130%	95
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	90
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	129
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	104
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	186 †
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	113
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	87
	BH1M_1.00-1.10	SE275489.018	%	60 - 130%	93
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	114
	BH2M_1.00-1.10	SE275489.020	%	60 - 130%	84
	QD	SE275489.022	%	60 - 130%	90
	QTB1	SE275489.023	%	60 - 130%	112
	QTS1	SE275489.024	%	60 - 130%	91

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR	SE275489.021	%	40 - 130%	103
d4-1,2-dichloroethane (Surrogate)	QR	SE275489.021	%	40 - 130%	98
d8-toluene (Surrogate)	QR	SE275489.021	%	40 - 130%	84

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	91
	BH101_0.60-0.70	SE275489.002	%	60 - 130%	74
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	71
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	74
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	73
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	75
	BH105_0.70-0.80	SE275489.007	%	60 - 130%	65
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	67
	BH106_0.70-0.80	SE275489.009	%	60 - 130%	70
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	67
	BH107_0.70-0.80	SE275489.011	%	60 - 130%	84
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	68
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	64
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	83
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	91
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	85
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	68
	BH1M_1.00-1.10	SE275489.018	%	60 - 130%	71
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	67
	BH2M_1.00-1.10	SE275489.020	%	60 - 130%	80
d4-1,2-dichloroethane (Surrogate)	QD	SE275489.022	%	60 - 130%	83
	BH101_0.10-0.20	SE275489.001	%	60 - 130%	108
	BH101_0.60-0.70	SE275489.002	%	60 - 130%	63
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	73
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	111
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	83
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	84
	BH105_0.70-0.80	SE275489.007	%	60 - 130%	82
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	90
	BH106_0.70-0.80	SE275489.009	%	60 - 130%	121
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	113
	BH107_0.70-0.80	SE275489.011	%	60 - 130%	63
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	83
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	87
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	107
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	176 †
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	83
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	80
	BH1M_1.00-1.10	SE275489.018	%	60 - 130%	127
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	86



SURROGATES

SE275489 R0

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 identifier 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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH2M_1.00-1.10	SE275489.020	%	60 - 130%	101
	QD	SE275489.022	%	60 - 130%	99
d8-toluene (Surrogate)	BH101_0.10-0.20	SE275489.001	%	60 - 130%	105
	BH101_0.60-0.70	SE275489.002	%	60 - 130%	88
	BH102_0.20-0.30	SE275489.003	%	60 - 130%	93
	BH103_0.20-0.30	SE275489.004	%	60 - 130%	92
	BH104_0.20-0.30	SE275489.005	%	60 - 130%	118
	BH105_0.20-0.30	SE275489.006	%	60 - 130%	98
	BH105_0.70-0.80	SE275489.007	%	60 - 130%	112
	BH106_0.20-0.30	SE275489.008	%	60 - 130%	112
	BH106_0.70-0.80	SE275489.009	%	60 - 130%	95
	BH107_0.20-0.30	SE275489.010	%	60 - 130%	104
	BH107_0.70-0.80	SE275489.011	%	60 - 130%	95
	BH108_0.00-0.10	SE275489.012	%	60 - 130%	90
	BH109_0.30-0.40	SE275489.013	%	60 - 130%	129
	BH110_0.30-0.40	SE275489.014	%	60 - 130%	104
	BH111_0.10-0.20	SE275489.015	%	60 - 130%	186 †
	BH112_0.00-0.10	SE275489.016	%	60 - 130%	113
	BH1M_0.10-0.20	SE275489.017	%	60 - 130%	87
	BH1M_1.00-1.10	SE275489.018	%	60 - 130%	93
	BH2M_0.10-0.20	SE275489.019	%	60 - 130%	114
	BH2M_1.00-1.10	SE275489.020	%	60 - 130%	84
	QD	SE275489.022	%	60 - 130%	90

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR	SE275489.021	%	40 - 130%	103
d4-1,2-dichloroethane (Surrogate)	QR	SE275489.021	%	60 - 130%	98
d8-toluene (Surrogate)	QR	SE275489.021	%	40 - 130%	84



METHOD BLANKS

SE275489 R0

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(Porth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB332861.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB332685.001	Mercury	mg/kg	0.05	<0.05
LB332686.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB332666.001	Alpha BHC	mg/kg	0.1	<0.1
	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Lindane (gamma BHC)	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.1	<0.1
	Endrin	mg/kg	0.1	<0.1
	Beta Endosulfan	mg/kg	0.1	<0.1
	p,p'-DDD	mg/kg	0.1	<0.1
	Endrin aldehyde	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endrin ketone	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB332666.001	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Bromophos Ethyl	mg/kg	0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Ethion	mg/kg	0.2	<0.2
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2
	Methidathion	mg/kg	0.5	<0.5
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	2-fluorobiphenyl (Surrogate)	%	-	106
	d14-p-terphenyl (Surrogate)	%	-	105
Surrogates				

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB332666.001	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



METHOD BLANKS

SE275489 R0

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
LB332666.001	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(ah)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)	%	-	97
	2-fluorobiphenyl (Surrogate)	%	-	106
	d14-p-terphenyl (Surrogate)	%	-	105
LB332669.001	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(ah)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)	%	-	102
	d14-p-terphenyl (Surrogate)	%	-	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB332666.001	Arochlor 1016	mg/kg	0.1	<0.1
	Arochlor 1232	mg/kg	0.1	<0.1
	Arochlor 1242	mg/kg	0.1	<0.1
	Arochlor 1248	mg/kg	0.1	<0.1
	Arochlor 1254	mg/kg	0.1	<0.1
	Arochlor 1260	mg/kg	0.1	<0.1
	Total PCBs	mg/kg	0.1	<0.1
	Surrogates			
	TCMX (Surrogate)	%	-	103

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB332681.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0
LB332682.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0



METHOD BLANKS

SE275489 R0

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.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB332713.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5
LB332713.025	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB332666.001	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
LB332669.001	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
LB332668.001	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

Sample Number		Parameter	Units	LOR	Result
LB332672.001	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 (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	100
		Bromofluorobenzene (Surrogate)	%	-	94
	Totals	Total BTEX*	mg/kg	0.6	<0.6
LB332673.001	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 (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	117
		d8-toluene (Surrogate)	%	-	106
		Bromofluorobenzene (Surrogate)	%	-	92
	Totals	Total BTEX*	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB332701.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5



METHOD BLANKS

SE275489 R0

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

Sample Number		Parameter	Units	LOR	Result
LB332701.001	Monocyclic Aromatic	m/p-xylene	µg/L	1	<1
	Hydrocarbons	o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)*	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	97
		d8-toluene (Surrogate)	%	-	83
		Bromofluorobenzene (Surrogate)	%	-	99

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB332672.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
LB332673.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	117

Volatile Petroleum Hydrocarbons in Water Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB332701.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	97
		d8-toluene (Surrogate)	%	-	83
		Bromofluorobenzene (Surrogate)	%	-	99



DUPLICATES

SE275489 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275330.017	LB332861.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0
SE275489.021	LB332861.027	Mercury	µg/L	0.0001	<0.0001	0.0000	200	198

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275473.002	LB332686.020	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE275474.008	LB332686.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE275489.010	LB332685.014	Mercury	mg/kg	0.05	<0.05	<0.05	197	0
SE275489.019	LB332685.024	Mercury	mg/kg	0.05	<0.05	<0.05	166	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275473.002	LB332677.021	% Moisture	%w/w	1	17.9	17.3	36	4
SE275474.007	LB332677.011	% Moisture	%w/w	1	8.9	9.1	41	2
SE275489.010	LB332676.011	% Moisture	%w/w	1	7.9	8.6	42	8
SE275489.019	LB332676.021	% Moisture	%w/w	1	9.0	12.4	39	32

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275489.010	LB332666.014	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	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
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	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
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	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	0.1	<0.1	<0.1	200	0
		Endrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	200	0
SE275489.019	LB332666.024	Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
		Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates						
		Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.48	0.46	30	3
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	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
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	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
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	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	0.1	<0.1	<0.1	200	0
		Endrin	mg/kg	0.1	<0.1	<0.1	200	0



DUPLICATES

SE275489 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275489.019	LB332666.024	Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	200	0
		Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
		Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.49	30	3

OP Pesticides in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE275489.010	LB332666.014	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0	
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0	
		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0	
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0	
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0	
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0	
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0	
		Methidathion	mg/kg	0.5	<0.5	<0.5	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
SE275489.019	LB332666.024	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0	
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0	
		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0	
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0	
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0	
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0	
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0	
		Methidathion	mg/kg	0.5	<0.5	<0.5	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275473.002	LB332669.023	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



DUPLICATES

SE275489 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275473.002	LB332669.023	Dibenzo(ah)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*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	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	7
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	8
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	9
SE275474.008	LB332669.014	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(ah)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*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	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	0
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
SE275489.010	LB332666.014	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(ah)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*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	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	3
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
SE275489.019	LB332666.024	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0



DUPLICATES

SE275489 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275489.019	LB332666.024	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(ah)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*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	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	-	0.5	0.5	30	4
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3

PCBs in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275489.010	LB332666.014	Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1232	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1242	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1248	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1254	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1260	mg/kg	0.1	<0.1	<0.1	200	0
		Total PCBs	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates						
SE275489.019	LB332666.024	TCMX (Surrogate)	mg/kg	-	0.48	0.46	30	3
		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1232	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1242	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1248	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1254	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1260	mg/kg	0.1	<0.1	<0.1	200	0
		Total PCBs	mg/kg	0.1	<0.1	<0.1	200	0
SE275474.008	LB332682.014	Surrogates						
		TCMX (Surrogate)	mg/kg	-	0.49	0.47	30	3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-ENVJAN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275473.002	LB332682.020	Arsenic, As	mg/kg	1	5	5	50	1
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	14	15	33	3
		Copper, Cu	mg/kg	0.5	21	20	32	6
		Nickel, Ni	mg/kg	0.5	6.7	7.0	37	5
		Lead, Pb	mg/kg	1	18	18	36	4
		Zinc, Zn	mg/kg	2	29	29	37	0
SE275474.008	LB332682.014	Arsenic, As	mg/kg	1	2	2	74	9
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	5.2	5.7	39	9
		Copper, Cu	mg/kg	0.5	2.5	2.3	51	6
		Nickel, Ni	mg/kg	0.5	4.5	4.5	41	0
		Lead, Pb	mg/kg	1	12	12	38	1
		Zinc, Zn	mg/kg	2	28	32	37	13
SE275489.010	LB332681.014	Arsenic, As	mg/kg	1	2	2	86	18
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	8.7	8.8	36	1



DUPLICATES

SE275489 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-ENVJAN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275489.010	LB332681.014	Copper, Cu	mg/kg	0.5	3.0	3.2	46	6
		Nickel, Ni	mg/kg	0.5	0.8	0.7	93	13
		Lead, Pb	mg/kg	1	12	13	38	10
		Zinc, Zn	mg/kg	2	19	21	40	11
SE275489.019	LB332681.024	Arsenic, As	mg/kg	1	3	2	67	21
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	16	17	33	10
		Copper, Cu	mg/kg	0.5	5.7	4.7	40	19
		Nickel, Ni	mg/kg	0.5	4.8	3.7	42	26
		Lead, Pb	mg/kg	1	52	43	32	20
		Zinc, Zn	mg/kg	2	320	310	31	5

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-ENVJAN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275324.010	LB332713.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE275473.002	LB332669.023	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 (F bands)	mg/kg	210	<210	<210	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	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	
SE275474.008	LB332669.014	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 (F bands)	mg/kg	210	<210	<210	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	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	
SE275489.010	LB332666.014	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 (F bands)	mg/kg	210	<210	<210	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	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	
SE275489.019	LB332666.024	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	139	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 (F bands)	mg/kg	210	<210	<210	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0	



DUPLICATES

SE275489 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275489.019	LB332666.024	TRH F Bands	mg/kg	90	<90	<90	200	0
		TRH >C16-C34 (F3)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275473.002	LB332673.022	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
			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 (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.3	10.9	50	5
			d8-toluene (Surrogate)	mg/kg	-	9.2	9.3	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.2	8.2	50	0
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE275474.006	LB332673.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
			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 (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.0	11.1	50	1
			d8-toluene (Surrogate)	mg/kg	-	10.1	10.2	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.7	50	2
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE275489.010	LB332672.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
			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 (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.3	9.4	50	19
			d8-toluene (Surrogate)	mg/kg	-	10.4	9.9	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	6.3	50	6
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE275489.019	LB332672.024	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
			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 (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	10.6	50	20
			d8-toluene (Surrogate)	mg/kg	-	11.4	10.1	50	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	7.6	50	13
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0

VOCs in Water

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275362.019	LB332701.024	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	0.9	1.0	83	1
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.9	9.2	30	7
			d8-toluene (Surrogate)	µg/L	-	8.6	9.6	30	11
			Bromofluorobenzene (Surrogate)	µg/L	-	10.2	10.9	30	7
		Totals	Total BTEX	µg/L	3	<3	<3	200	0



DUPLICATES

SE275489 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275473.002	LB332673.022	TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.3	10.9	50	5
		d8-toluene (Surrogate)	mg/kg	-	9.2	9.3	50	1
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.2	8.2	50	0
		VPH F Bands						
		Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
SE275474.006	LB332673.014	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
		TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.0	11.1	50	1
		d8-toluene (Surrogate)	mg/kg	-	10.1	10.2	50	2
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.7	50	2
		VPH F Bands						
SE275489.010	LB332672.014	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
		TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.3	9.4	50	19
		d8-toluene (Surrogate)	mg/kg	-	10.4	9.9	50	5
		Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	6.3	50	6
SE275489.019	LB332672.024	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
		TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	10.6	50	20
		d8-toluene (Surrogate)	mg/kg	-	11.4	10.1	50	12
SE275489.019	LB332672.024	Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	7.6	50	13
		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

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE275284.008	LB332701.023	TRH C6-C10	µg/L	50	29.59099898088.288217435C		200	0	
		TRH C6-C9	µg/L	40	23.20458143382.057304462C		200	0	
		Surrogates							
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.21536881169.9322010530		30	3	
		d8-toluene (Surrogate)	µg/L	-	9.169334927910.446780499E		30	13	
		Bromofluorobenzene (Surrogate)	µg/L	-	9.978922669110.7813424394		30	8	
		VPH F Bands							
		Benzene (F0)	µg/L	0.5	0.01685870310.0177025259		200	0	
SE275362.019	LB332701.024	TRH C6-C10 minus BTEX (F1)	µg/L	50	29.59099898088.288217435C		200	0	
		TRH C6-C10	µg/L	50	1.246731876611.6902061982		200	0	
		TRH C6-C9	µg/L	40	0	5.7612973269		200	0
		Surrogates							
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.86679591129.2353891514		30	7	
		d8-toluene (Surrogate)	µg/L	-	8.63334066299.5986860315		30	11	
		Bromofluorobenzene (Surrogate)	µg/L	-	10.20756307290.9299564672		30	7	
		VPH F Bands							
Benzene (F0)	µg/L	0.5	0.11740180810.1090618656		200	0			
TRH C6-C10 minus BTEX (F1)	µg/L	50	0.298938386210.7366429107		200	0			



LABORATORY CONTROL SAMPLES

SE275489 R0

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 %
LB332685.002	Mercury	mg/kg	0.05	0.24	0.2	80 - 120	120
LB332686.002	Mercury	mg/kg	0.05	0.17	0.2	80 - 120	87

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332666.002	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	111
	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	111
	Aldrin	mg/kg	0.1	0.3	0.2	60 - 140	129
	Dieldrin	mg/kg	0.1	0.3	0.2	60 - 140	135
	Endrin	mg/kg	0.1	0.2	0.2	60 - 140	124
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	79
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/ka	-	0.49	0.5	40 - 130

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB332666.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.3	2	60 - 140	115	
	Diazinon (Dimpylate)	mg/kg	0.5	2.4	2	60 - 140	121	
	Dichlorvos	mg/kg	0.5	2.0	2	60 - 140	98	
	Ethion	mg/kg	0.2	2.4	2	60 - 140	122	
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB332666.002	Naphthalene	mg/kg	0.1	3.8	4	60 - 140	95	
	Acenaphthylene	mg/kg	0.1	4.0	4	60 - 140	100	
	Acenaphthene	mg/kg	0.1	3.8	4	60 - 140	95	
	Phenanthrene	mg/kg	0.1	4.3	4	60 - 140	107	
	Anthracene	mg/kg	0.1	4.1	4	60 - 140	103	
	Fluoranthene	mg/kg	0.1	4.1	4	60 - 140	102	
	Pyrene	mg/kg	0.1	4.3	4	60 - 140	108	
	Benzo(a)pyrene	mg/kg	0.1	4.8	4	60 - 140	121	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	93
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	102
	LB332669.002	Naphthalene	mg/kg	0.1	3.8	4	60 - 140	96
Acenaphthylene		mg/kg	0.1	3.9	4	60 - 140	98	
Acenaphthene		mg/kg	0.1	3.8	4	60 - 140	96	
Phenanthrene		mg/kg	0.1	4.2	4	60 - 140	105	
Anthracene		mg/kg	0.1	3.9	4	60 - 140	98	
Fluoranthene		mg/kg	0.1	3.9	4	60 - 140	98	
Pyrene		mg/kg	0.1	4.1	4	60 - 140	103	
Benzo(a)pyrene		mg/kg	0.1	4.9	4	60 - 140	122	
Surrogates		d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	96
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	105
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332666.002	Arochlor 1260	mg/kg	0.1	0.5	0.4	60 - 140	117
	Surrogates	TCMX (Surrogate)	mg/kg	-	0.49	0.5	40 - 130

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332681.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	102
	Cadmium, Cd	mg/kg	0.3	4.0	4.81	70 - 130	83
	Chromium, Cr	mg/kg	0.5	35	38.31	80 - 120	91
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	103
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	96
	Lead, Pb	mg/kg	1	87	89.9	80 - 120	96
	Zinc, Zn	mg/kg	2	260	273	80 - 120	96



LABORATORY CONTROL SAMPLES

SE275489 R0

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.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332682.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	104
	Cadmium, Cd	mg/kg	0.3	4.0	4.81	70 - 130	84
	Chromium, Cr	mg/kg	0.5	36	38.31	80 - 120	94
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	105
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	98
	Lead, Pb	mg/kg	1	88	89.9	80 - 120	98
	Zinc, Zn	mg/kg	2	270	273	80 - 120	98

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332713.002	Arsenic	µg/L	1	20	20	80 - 120	100
	Cadmium	µg/L	0.1	22	20	80 - 120	111
	Chromium	µg/L	1	22	20	80 - 120	109
	Copper	µg/L	1	22	20	80 - 120	112
	Lead	µg/L	1	22	20	80 - 120	109
	Nickel	µg/L	1	21	20	80 - 120	105
	Zinc	µg/L	5	22	20	80 - 120	111
LB332713.026	Arsenic	µg/L	1	20	20	80 - 120	100
	Cadmium	µg/L	0.1	23	20	80 - 120	113
	Chromium	µg/L	1	22	20	80 - 120	110
	Copper	µg/L	1	23	20	80 - 120	114
	Lead	µg/L	1	22	20	80 - 120	111
	Nickel	µg/L	1	21	20	80 - 120	107
	Zinc	µg/L	5	23	20	80 - 120	114

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332666.002	TRH C10-C14	mg/kg	20	45	40	60 - 140	112
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	90
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	84
	TRH F Bands	mg/kg	25	42	40	60 - 140	105
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	84
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	87
	TRH C10-C14	mg/kg	20	46	40	60 - 140	116
LB332669.002	TRH C15-C28	mg/kg	45	<45	40	60 - 140	91
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	mg/kg	25	43	40	60 - 140	108
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	85
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	88

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332668.002	TRH C10-C14	µg/L	50	1300	1200	60 - 140	107
	TRH C15-C28	µg/L	200	1400	1200	60 - 140	117
	TRH C29-C36	µg/L	200	1400	1200	60 - 140	121
	TRH F Bands	µg/L	60	1400	1200	60 - 140	115
	TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	119
	TRH >C34-C40 (F4)	µg/L	500	730	600	60 - 140	121

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332672.002	Monocyclic	Benzene	mg/kg	0.1	4.5	5	60 - 140	90
	Aromatic	Toluene	mg/kg	0.1	4.6	5	60 - 140	91
		Ethylbenzene	mg/kg	0.1	4.4	5	60 - 140	88
		m/p-xylene	mg/kg	0.2	8.5	10	60 - 140	85
		o-xylene	mg/kg	0.1	4.5	5	60 - 140	89
LB332673.002	Monocyclic	Benzene	mg/kg	0.1	4.6	5	60 - 140	93
	Aromatic	Toluene	mg/kg	0.1	4.9	5	60 - 140	98
		Ethylbenzene	mg/kg	0.1	4.6	5	60 - 140	92
		m/p-xylene	mg/kg	0.2	9.0	10	60 - 140	90
		o-xylene	mg/kg	0.1	4.8	5	60 - 140	97



LABORATORY CONTROL SAMPLES

SE275489 R0

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

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332701.002	Monocyclic	Benzene	µg/L	0.5	55	45.45	60 - 140
		Toluene	µg/L	0.5	51	45.45	60 - 140
	Aromatic	Ethylbenzene	µg/L	0.5	55	45.45	60 - 140
		m/p-xylene	µg/L	1	110	90.9	60 - 140
		o-xylene	µg/L	0.5	58	45.45	60 - 140
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.1	10	60 - 140
		d8-toluene (Surrogate)	µg/L	-	9.6	10	70 - 130
		Bromofluorobenzene (Surrogate)	µg/L	-	12.5	10	70 - 130

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332672.002	TRH C6-C10	mg/kg	25	96	92.5	60 - 140	104
	TRH C6-C9	mg/kg	20	85	80	60 - 140	106
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	70	62.5	60 - 140
LB332673.002	TRH C6-C10	mg/kg	25	66	92.5	60 - 140	71
	TRH C6-C9	mg/kg	20	58	80	60 - 140	72
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	38	62.5	60 - 140

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332701.002	TRH C6-C10	µg/L	50	910	946.63	60 - 140	96
	TRH C6-C9	µg/L	40	770	818.71	60 - 140	94
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.1	10	60 - 140
		d8-toluene (Surrogate)	µg/L	-	9.6	10	70 - 130
		Bromofluorobenzene (Surrogate)	µg/L	-	12.5	10	70 - 130
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	580	639.67	60 - 140
							91



MATRIX SPIKES

SE275489 R0

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 identifier 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(Porth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275307.001	LB332861.004	Mercury	mg/L	0.0001	0.0019	-0.038	0.008	96

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.001	LB332685.004	Mercury	mg/kg	0.05	0.27	<0.05	0.2	116
SE275489.020	LB332686.004	Mercury	mg/kg	0.05	0.25	<0.05	0.2	125

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.001	LB332666.004	Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
		Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	-	-
		Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	115
		Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	117
		Aldrin	mg/kg	0.1	0.3	<0.1	0.2	129
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
		Dieldrin	mg/kg	0.1	0.3	<0.1	0.2	133
		Endrin	mg/kg	0.1	0.3	<0.1	0.2	131
		Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	89
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
		Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		Total OC Pesticides	mg/kg	0.1	1.4	<0.1	-	-
		Total OC VIC EPA IWRG621	mg/kg	0.1	1.4	<0.1	-	-
		Total Other OCP VIC EPA IWRG621	mg/kg	0.1	0.7	<0.1	-	-
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.47	0.46	-	94

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.001	LB332666.004	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.3	<0.2	2	114
		Diazinon (Dimpylate)	mg/kg	0.5	2.4	<0.5	2	120
		Dichlorvos	mg/kg	0.5	2.0	<0.5	2	98
		Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
		Ethion	mg/kg	0.2	2.5	<0.2	2	123
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
		Malathion	mg/kg	0.2	<0.2	<0.2	-	-
		Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
		Total OP Pesticides*	mg/kg	1.7	9.1	<1.7	-	-
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	99
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	97

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275474.001	LB332669.025	Naphthalene	mg/kg	0.1	<0.1	<0.1	4	91
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-



MATRIX SPIKES

SE275489 R0

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 identifier 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%
SE275474.001	LB332669.025	Acenaphthylene	mg/kg	0.1	<0.1	<0.1	4	89
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	4	91
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	4	99
		Anthracene	mg/kg	0.1	<0.1	<0.1	4	91
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	4	104
		Pyrene	mg/kg	0.1	<0.1	<0.1	4	108
		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	<0.1	<0.1	4	116
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)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 (mg/kg)	0.2	<0.2	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	-	-
		Total PAH (18)	mg/kg	0.8	<0.8	<0.8	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	-	-	91
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	-	-	96
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	-	91
SE275489.001	LB332666.004	Naphthalene	mg/kg	0.1	3.7	<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	3.9	<0.1	4	97
		Acenaphthene	mg/kg	0.1	3.7	<0.1	4	93
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.2	<0.1	4	104
		Anthracene	mg/kg	0.1	4.0	<0.1	4	101
		Fluoranthene	mg/kg	0.1	4.0	<0.1	4	97
		Pyrene	mg/kg	0.1	2.9	<0.1	4	71
		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	4.7	<0.1	4	116
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)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 (mg/kg)	0.2	4.7	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.7	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.8	<0.3	-	-
		Total PAH (18)	mg/kg	0.8	31	<0.8	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	90
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	99
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	97

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.001	LB332666.004	Arochlor 1016	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1232	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1242	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1248	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1254	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1260	mg/kg	0.1	0.5	<0.1	0.4	117
		Total PCBs	mg/kg	0.1	0.5	<0.1	-	-
	Surrogates	TCMX (Surrogate)	mg/kg	-	0.47	0.46	-	94

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR
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MATRIX SPIKES

SE275489 R0

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.001	LB332681.004	Arsenic, As	mg/kg	1	45	4	50	83
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	86
		Chromium, Cr	mg/kg	0.5	49	8.5	50	81
		Copper, Cu	mg/kg	0.5	49	6.2	50	86
		Nickel, Ni	mg/kg	0.5	45	2.7	50	84
		Lead, Pb	mg/kg	1	64	24	50	79
		Zinc, Zn	mg/kg	2	93	47	50	93
SE275489.020	LB332682.004	Arsenic, As	mg/kg	1	44	2	50	86
		Cadmium, Cd	mg/kg	0.3	45	<0.3	50	90
		Chromium, Cr	mg/kg	0.5	53	8.3	50	89
		Copper, Cu	mg/kg	0.5	46	<0.5	50	91
		Nickel, Ni	mg/kg	0.5	46	<0.5	50	91
		Lead, Pb	mg/kg	1	49	4	50	90
		Zinc, Zn	mg/kg	2	48	2.5	50	90

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275307.001	LB332713.004	Arsenic	µg/L	1	19	0.14	20	96
		Cadmium	µg/L	0.1	21	0.054	20	107
		Chromium	µg/L	1	21	0.015	20	104
		Copper	µg/L	1	21	0.427	20	105
		Lead	µg/L	1	21	0.138	20	106
		Nickel	µg/L	1	23	3.67	20	98
		Zinc	µg/L	5	33	14.621	20	92

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275474.001	LB332669.025	TRH C10-C14	mg/kg	20	46	<20	40	110
		TRH C15-C28	mg/kg	45	<45	<45	40	93
		TRH C29-C36	mg/kg	45	47	<45	40	88
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F	mg/kg	25	43	<25	40	102
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	43	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	89
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
SE275489.001	LB332666.004	TRH C10-C14	mg/kg	20	48	<20	40	116
		TRH C15-C28	mg/kg	45	52	<45	40	92
		TRH C29-C36	mg/kg	45	65	<45	40	114
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	160	<110	-	-
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F	mg/kg	25	45	<25	40	107
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	45	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	94
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.001	LB332672.004	Monocyclic	Benzene	mg/kg	0.1	5.4	<0.1	5	106
			Aromatic	Toluene	mg/kg	0.1	6.1	<0.1	5
		Ethylbenzene		mg/kg	0.1	6.2	<0.1	5	124
		m/p-xylene		mg/kg	0.2	12	<0.2	10	117
		o-xylene		mg/kg	0.1	5.9	<0.1	5	117
		Polycyclic		Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-
			Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.8	10.8	-
		d8-toluene (Surrogate)		mg/kg	-	10.1	10.5	-	101
		Bromofluorobenzene (Surrogate)		mg/kg	-	10.6	9.1	-	106
		Totals	Total BTEX*	mg/kg	0.6	35	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	18	<0.3	-	-
SE275489.020	LB332673.004	Monocyclic	Benzene	mg/kg	0.1	4.5	<0.1	5	89



MATRIX SPIKES

SE275489 R0

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 identifier 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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.020	LB332673.004	Monocyclic	Toluene	mg/kg	0.1	4.4	<0.1	5	88
			Ethylbenzene	mg/kg	0.1	4.9	<0.1	5	98
		Aromatic	m/p-xylene	mg/kg	0.2	9.6	<0.2	10	96
			o-xylene	mg/kg	0.1	5.1	<0.1	5	102
			Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.8	10.1	-	98
			d8-toluene (Surrogate)	mg/kg	-	7.9	8.4	-	79
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.1	8.0	-	91
		Totals	Total BTEX*	mg/kg	0.6	29	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	15	<0.3	-	-

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE275463.001	LB332701.025	Monocyclic	Benzene	µg/L	0.5	<0.5	45.45	100
			Toluene	µg/L	0.5	<0.5	45.45	108
		Aromatic	Ethylbenzene	µg/L	0.5	<0.5	45.45	106
			m/p-xylene	µg/L	1	<1	90.9	107
			o-xylene	µg/L	0.5	<0.5	45.45	107
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.0	-	97
			d8-toluene (Surrogate)	µg/L	-	9.6	-	108
			Bromofluorobenzene (Surrogate)	µg/L	-	10.0	-	113
		Totals	Total BTEX	µg/L	3	<3	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275489.001	LB332672.004		TRH C6-C10	mg/kg	25	77	<25	92.5	84
			TRH C6-C9	mg/kg	20	86	<20	80	106
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.8	10.8	-	128
			d8-toluene (Surrogate)	mg/kg	-	10.1	10.5	-	101
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.6	9.1	-	106
		VPH F	Benzene (F0)	mg/kg	0.1	5.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	42	<25	62.5	67
SE275489.020	LB332673.004		TRH C6-C10	mg/kg	25	75	<25	92.5	81
			TRH C6-C9	mg/kg	20	60	<20	80	75
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.8	10.1	-	98
			d8-toluene (Surrogate)	mg/kg	-	7.9	8.4	-	79
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.1	8.0	-	91
		VPH F	Benzene (F0)	mg/kg	0.1	4.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	47	<25	62.5	74



Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

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 : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- 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 relevant report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE276055 R0

CLIENT DETAILS

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Order Number **E26489**
Samples 2

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SGS Reference **SE276055 R0**
Date Received 18 Dec 2024
Date Reported 24 Dec 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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.

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	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	16 items
Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	3 items

SAMPLE SUMMARY

Sample counts by matrix	1 Soil	Type of documentation received	COC
Date documentation received	18/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.5°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		



HOLDING TIME SUMMARY

SE276055 R0

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

Fibre Identification in soil

Method: ME-(AU)-[ENV]AS4964/AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333933	17 Dec 2024	18 Dec 2024	17 Dec 2025	19 Dec 2024	17 Dec 2025	24 Dec 2024

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333989	17 Dec 2024	18 Dec 2024	14 Jan 2025	19 Dec 2024	14 Jan 2025	24 Dec 2024

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333987	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	24 Dec 2024	23 Dec 2024

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333984	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	28 Jan 2025	23 Dec 2024

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333984	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	28 Jan 2025	23 Dec 2024

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
BH3M_0.3-0.4	SE276055.001	LB333984	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	28 Jan 2025	23 Dec 2024

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333984	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	28 Jan 2025	24 Dec 2024

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333988	17 Dec 2024	18 Dec 2024	15 Jun 2025	19 Dec 2024	15 Jun 2025	24 Dec 2024

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
BH3M_0.3-0.4	SE276055.001	LB333984	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	28 Jan 2025	23 Dec 2024

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333986	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	31 Dec 2024	23 Dec 2024

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_0.3-0.4	SE276055.001	LB333986	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	31 Dec 2024	23 Dec 2024



SURROGATES

SE276055 R0

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 identifier 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]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	99

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	94
d14-p-terphenyl (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	70 - 130%	94
d14-p-terphenyl (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	70 - 130%	94
d5-nitrobenzene (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	70 - 130%	97

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	99

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	88
d4-1,2-dichloroethane (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	95
d8-toluene (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	86

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	88
d4-1,2-dichloroethane (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	95
d8-toluene (Surrogate)	BH3M_0.3-0.4	SE276055.001	%	60 - 130%	86



METHOD BLANKS

SE276055 R0

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 in Soil

Method: ME-(AU)-ENVJAN312

Sample Number	Parameter	Units	LOR	Result
LB333989.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB333984.001	Alpha BHC	mg/kg	0.1	<0.1
	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Lindane (gamma BHC)	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.1	<0.1
	Endrin	mg/kg	0.1	<0.1
	Beta Endosulfan	mg/kg	0.1	<0.1
	p,p'-DDD	mg/kg	0.1	<0.1
	Endrin aldehyde	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endrin ketone	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101

OP Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB333984.001	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Bromophos Ethyl	mg/kg	0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Ethion	mg/kg	0.2	<0.2
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2
	Methidathion	mg/kg	0.5	<0.5
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	2-fluorobiphenyl (Surrogate)	%	-	95
	d14-p-terphenyl (Surrogate)	%	-	94
Surrogates				

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB333984.001	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



METHOD BLANKS

SE276055 R0

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
LB333984.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)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)	%	-	103
		2-fluorobiphenyl (Surrogate)	%	-	95
		d14-p-terphenyl (Surrogate)	%	-	94

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB333984.001		Arochlor 1016	mg/kg	0.1	<0.1
		Arochlor 1232	mg/kg	0.1	<0.1
		Arochlor 1242	mg/kg	0.1	<0.1
		Arochlor 1248	mg/kg	0.1	<0.1
		Arochlor 1254	mg/kg	0.1	<0.1
		Arochlor 1260	mg/kg	0.1	<0.1
		Total PCBs	mg/kg	0.1	<0.1
	Surrogates	TCMX (Surrogate)	%	-	101

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB333988.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB333984.001		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

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB333986.001	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 (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	96
	Totals	Total BTEX*	mg/kg	0.6	<0.3

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB333986.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	93



DUPLICATES

SE276055 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]JAN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333989.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE276115.001	LB333989.022	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]JAN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333987.011	% Moisture	%w/w	1	4.0	4.7	53	16
SE276115.001	LB333987.019	% Moisture	%w/w	1	1.9	2.3	78	21

OC Pesticides in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333984.014	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	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
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	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
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	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	0.1	<0.1	<0.1	200	0
		Endrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	200	0		
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0		
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0		
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.48	0.48	30	0
SE276115.001	LB333984.022	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	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
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	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
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	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	0.1	<0.1	<0.1	200	0
		Endrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0



DUPLICATES

SE276055 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OC Pesticides in Soil (continued)

Method: ME-(AU)-JENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276115.001	LB333984.022	Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	200	0
		Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
		Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.49	0.49	30	0

OP Pesticides in Soil

Method: ME-(AU)-JENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333984.014	Azinphos-methyl (Guthion)	mg/kg	0.2	0.00284042430.0009337337		200	0
		Bromophos Ethyl	mg/kg	0.2	0.00012803640.0047053070		200	0
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0.00258530710.0043717718		200	0
		Diazinon (Dimpylate)	mg/kg	0.5	0	1.2394880321	200	0
		Dichlorvos	mg/kg	0.5	0.00060244730.0005965961		200	0
		Dimethoate	mg/kg	0.5	0.00067351240.0025259493		200	0
		Ethion	mg/kg	0.2	0.00302451530.0004717153		200	0
		Fenitrothion	mg/kg	0.2	0.00019443450.0002750793		200	0
		Malathion	mg/kg	0.2	9.67790129860.0001599162		200	0
		Methodathion	mg/kg	0.5	0.00593430230.0015238930		200	0
		Parathion-ethyl (Parathion)	mg/kg	0.2	1.37897551426.0563902072		200	0
		Total OP Pesticides*	mg/kg	1.7	0	0	200	0
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.45947505700.4586321715		30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.46858415050.4611692585		30	2

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-JENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333984.014	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	171	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(ah)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*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	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	0
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE276115.001	LB333984.022	Naphthalene	mg/kg	0.1	0.1	0.2	88	72
		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	0.4	65	106 ②
		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	0.8	48	82 ②
		Anthracene	mg/kg	0.1	<0.1	0.3	87	94 ②
		Fluoranthene	mg/kg	0.1	0.7	2.2	37	107 ②
		Pyrene	mg/kg	0.1	0.7	2.3	37	109 ②
		Benzo(a)anthracene	mg/kg	0.1	0.4	1.5	41	117 ②
		Chrysene	mg/kg	0.1	0.3	1.4	42	120 ②



DUPLICATES

SE276055 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276115.001	LB333984.022	Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	1.0	46	111 @
		Benzo(k)fluoranthene	mg/kg	0.1	0.4	1.2	43	106 @
		Benzo(a)pyrene	mg/kg	0.1	0.5	1.6	40	110 @
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.3	0.9	48	111 @
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0.1	139	39
		Benzo(ghi)perylene	mg/kg	0.1	0.2	0.7	52	99 @
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0.6	2.2	24	115 @
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.6	2.2	24	110 @
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.7	2.2	31	104 @
		Total PAH (18)	mg/kg	0.8	4.2	15	31	110 @
		Surrogates						
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	3
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1

PCBs in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333984.014	Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1232	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1242	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1248	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1254	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1260	mg/kg	0.1	<0.1	<0.1	200	0
		Total PCBs	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates						
SE276115.001	LB333984.022	TCMX (Surrogate)	mg/kg	-	0.48	0.48	30	0
		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1232	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1242	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1248	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1254	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1260	mg/kg	0.1	<0.1	<0.1	200	0
		Total PCBs	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates						
		TCMX (Surrogate)	mg/kg	-	0.49	0.49	30	0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]JAN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333988.014	Arsenic, As	mg/kg	1	1	1	111	13
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	12	13	34	6
		Copper, Cu	mg/kg	0.5	4.3	4.7	41	8
		Nickel, Ni	mg/kg	0.5	15	15	33	0
		Lead, Pb	mg/kg	1	3	2	68	9
		Zinc, Zn	mg/kg	2	13	13	45	2
		Surrogates						
SE276115.001	LB333988.022	Arsenic, As	mg/kg	1	5	5	52	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	3.3	3.2	45	2
		Copper, Cu	mg/kg	0.5	26	23	32	11
		Nickel, Ni	mg/kg	0.5	3.3	3.3	45	0
		Lead, Pb	mg/kg	1	7	7	44	5
		Zinc, Zn	mg/kg	2	13	13	45	3
		Surrogates						

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.029	LB333984.014	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 (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	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



DUPLICATES

SE276055 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276115.001	LB333984.022	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	54	152	17
		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 (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	194	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276035.019	LB333986.023	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
		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 (VOC)*	mg/kg	0.1	<0.1	<0.1	200
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.0	50	6
			d8-toluene (Surrogate)	mg/kg	-	8.6	8.2	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.1	8.7	50	5
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.3	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
		SE276115.001	LB333986.021	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1
Aromatic	Toluene				mg/kg	0.1	<0.1	<0.1	200
	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 (VOC)*	mg/kg	0.1	<0.1	<0.1	200
Surrogates	d4-1,2-dichloroethane (Surrogate)			mg/kg	-	8.9	8.7	50	2
	d8-toluene (Surrogate)			mg/kg	-	8.9	8.8	50	2
	Bromofluorobenzene (Surrogate)			mg/kg	-	9.3	9.2	50	1
Totals	Total BTEX*			mg/kg	0.6	<0.6	<0.3	200	0
	Total Xylenes*			mg/kg	0.3	<0.3	<0.3	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE276035.019	LB333986.023	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.0	50	6
		d8-toluene (Surrogate)	mg/kg	-	8.6	8.2	50	5	
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.1	8.7	50	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	
SE276115.001	LB333986.021	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.9	8.7	50	2
		d8-toluene (Surrogate)	mg/kg	-	8.9	8.8	50	2	
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	9.2	50	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	



LABORATORY CONTROL SAMPLES

SE276055 R0

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 %
LB333989.002	Mercury	mg/kg	0.05	0.21	0.2	80 - 120	103

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333984.002	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	84
	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	84
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	117
	Dieldrin	mg/kg	0.1	0.2	0.2	60 - 140	115
	Endrin	mg/kg	0.1	0.2	0.2	60 - 140	91
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	84
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.50	0.5	40 - 130	100

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333984.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.3	2	60 - 140	113
	Diazinon (Dimpylate)	mg/kg	0.5	2.4	2	60 - 140	120
	Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	91
	Ethion	mg/kg	0.2	2.4	2	60 - 140	120
	Surrogates						
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	94
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333984.002	Naphthalene	mg/kg	0.1	3.9	4	60 - 140	98
	Acenaphthylene	mg/kg	0.1	4.1	4	60 - 140	103
	Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	99
	Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	109
	Anthracene	mg/kg	0.1	4.3	4	60 - 140	107
	Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	99
	Pyrene	mg/kg	0.1	4.2	4	60 - 140	104
	Benzo(a)pyrene	mg/kg	0.1	4.4	4	60 - 140	109
	Surrogates						
	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	101
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	94
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	94

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333984.002	Arochlor 1260	mg/kg	0.1	0.4	0.4	60 - 140	111
Surrogates	TCMX (Surrogate)	mg/kg	-	0.50	0.5	40 - 130	100

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333988.002	Arsenic, As	mg/kg	1	340	318.22	80 - 120	108
	Cadmium, Cd	mg/kg	0.3	4.4	4.81	70 - 130	93
	Chromium, Cr	mg/kg	0.5	41	38.31	80 - 120	106
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	107
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	102
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	280	273	80 - 120	104

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333984.002	TRH C10-C14	mg/kg	20	51	40	60 - 140	126
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	108
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	82
	TRH F Bands						
	TRH >C10-C16	mg/kg	25	49	40	60 - 140	121
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	94
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	83

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR
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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.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333986.002	Monocyclic	Benzene	mg/kg	0.1	4.5	5	60 - 140	90
		Toluene	mg/kg	0.1	4.6	5	60 - 140	93
	Aromatic	Ethylbenzene	mg/kg	0.1	4.6	5	60 - 140	93
		m/p-xylene	mg/kg	0.2	9.0	10	60 - 140	90
		o-xylene	mg/kg	0.1	4.7	5	60 - 140	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333986.002		TRH C6-C10	mg/kg	25	79	92.5	60 - 140	86
		TRH C6-C9	mg/kg	20	70	80	60 - 140	88
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	52	62.5	60 - 140	83



MATRIX SPIKES

SE276055 R0

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276035.020	LB333989.004	Mercury	mg/kg	0.05	0.21	0.00381313131	0.2	103

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE276035.022	LB333984.024	Alpha BHC	mg/kg	0.1	0.00055877589	-	-
		Hexachlorobenzene (HCB)	mg/kg	0.1	0.00022587079	-	-
		Beta BHC	mg/kg	0.1	0.00132695429	-	-
		Lindane (gamma BHC)	mg/kg	0.1	0.00319008682	-	-
		Delta BHC	mg/kg	0.1	0.00198761235	0.2	110
		Heptachlor	mg/kg	0.1	0.00082931446	0.2	84
		Aldrin	mg/kg	0.1	0.00640987688	0.2	123
		Heptachlor epoxide	mg/kg	0.1	0.01197137397	-	-
		Gamma Chlordane	mg/kg	0.1	0.01207801382	-	-
		Alpha Chlordane	mg/kg	0.1	0.01558601036	-	-
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	0.02766402418	-	-
		Alpha Endosulfan	mg/kg	0.1	0.01397159037	-	-
		p,p'-DDE	mg/kg	0.1	0.00173412726	-	-
		Dieldrin	mg/kg	0.1	0.00548437588	0.2	109
		Endrin	mg/kg	0.1	0.00907539734	0.2	95
		Beta Endosulfan	mg/kg	0.1	0.00887232345	-	-
		p,p'-DDD	mg/kg	0.1	0.00410503841	-	-
		Endrin aldehyde	mg/kg	0.1	0.00115519042	-	-
		Endosulfan sulphate	mg/kg	0.1	0	-	-
		p,p'-DDT	mg/kg	0.1	0	0.2	80
		Endrin ketone	mg/kg	0.1	0.01102702088	-	-
		Methoxychlor	mg/kg	0.1	0.00491762002	-	-
		Mirex	mg/kg	0.1	0.00281292872	-	-
		Total OC Pesticides	mg/kg	0.1	0	-	-
		Total OC VIC EPA IWRG621	mg/kg	0.1	0	-	-
		Total Other OCP VIC EPA IWRG621	mg/kg	0.1	0	-	-
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.50093134211	-	99

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE276035.022	LB333984.024	Azinphos-methyl (Guthion)	mg/kg	0.2	0.02833574330	-	-
		Bromophos Ethyl	mg/kg	0.2	0.00043849464	-	-
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0.00503530361	2	126
		Diazinon (Dimpylate)	mg/kg	0.5	0.00028828767	2	129
		Dichlorvos	mg/kg	0.5	0.00324671625	2	105
		Dimethoate	mg/kg	0.5	0.00036362909	-	-
		Ethion	mg/kg	0.2	0.00513760730	2	121
		Fenitrothion	mg/kg	0.2	0	-	-
		Malathion	mg/kg	0.2	0.00310825549	-	-
		Methidathion	mg/kg	0.5	0.00488350387	-	-
		Parathion-ethyl (Parathion)	mg/kg	0.2	0.00116719374	-	-
		Total OP Pesticides*	mg/kg	1.7	0	-	-
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.46257011761	-	91
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.45737792911	-	89

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE276035.022	LB333984.024	Naphthalene	mg/kg	0.1	0.00898722296	4	95
		2-methylnaphthalene	mg/kg	0.1	0.00983564440	-	-
		1-methylnaphthalene	mg/kg	0.1	0.01217698175	-	-
		Acenaphthylene	mg/kg	0.1	0.00890050390	4	103
		Acenaphthene	mg/kg	0.1	0.00186297048	4	96
		Fluorene	mg/kg	0.1	0.00276411301	-	-
		Phenanthrene	mg/kg	0.1	0.07033805323	4	103
		Anthracene	mg/kg	0.1	0.01512258400	4	103
		Fluoranthene	mg/kg	0.1	0.11781337472	4	91



MATRIX SPIKES

SE276055 R0

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 identifier 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	Original	Spike	Recovery%
SE276035.022	LB333984.024	Pyrene	mg/kg	0.1	0.10961057388	4	96
		Benzo(a)anthracene	mg/kg	0.1	0.06505337130	-	-
		Chrysene	mg/kg	0.1	0.07120668981	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.05762685092	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	0.06031399299	-	-
		Benzo(a)pyrene	mg/kg	0.1	0.07755742785	4	101
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.04672727422	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	0.01096947677	-	-
		Benzo(ghi)perylene	mg/kg	0.1	0.05714941331	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	0	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.121	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	0.242	-	-
		Total PAH (18)	mg/kg	0.8	0.22742394861	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.49405842161	-	104
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.46257011761	-	91
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.45737792911	-	89

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE276035.022	LB333984.024	Arochlor 1016	mg/kg	0.1	0	-	-
		Arochlor 1232	mg/kg	0.1	0	-	-
		Arochlor 1242	mg/kg	0.1	0	-	-
		Arochlor 1248	mg/kg	0.1	0	-	-
		Arochlor 1254	mg/kg	0.1	0	-	-
		Arochlor 1260	mg/kg	0.1	0	0.4	108
		Total PCBs	mg/kg	0.1	0	-	-
	Surrogates	TCMX (Surrogate)	mg/kg	-	0.501	-	99

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276035.020	LB333988.004	Arsenic, As	mg/kg	1	49	1.58592083297	50	94
		Cadmium, Cd	mg/kg	0.3	44	0.00939931528	50	89
		Chromium, Cr	mg/kg	0.5	48	1.98368276603	50	91
		Copper, Cu	mg/kg	0.5	48	1.13988059870	50	93
		Nickel, Ni	mg/kg	0.5	47	1.45689386865	50	92
		Lead, Pb	mg/kg	1	50	2.51303511303	50	96
		Zinc, Zn	mg/kg	2	52	3.99000933706	50	96

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276035.022	LB333984.024	TRH C10-C14	mg/kg	20	59	21.11219094280	40	94
		TRH C15-C28	mg/kg	45	200	84.99453390938	40	26 ⑥
		TRH C29-C36	mg/kg	45	330	26.4251770343	40	-252 ⑥
		TRH C37-C40	mg/kg	100	170	88.5455024117	-	-
		TRH C10-C36 Total	mg/kg	110	580	32.5319018870	-	-
		TRH >C10-C40 Total (F bands)	mg/kg	210	730	18.9916156870	-	-
	TRH F Bands	TRH >C10-C16	mg/kg	25	67	31.47755779553	40	89
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	67	31.47755779553	-	-
		TRH >C16-C34 (F3)	mg/kg	90	400	83.9958770062	40	-215 ⑥
		TRH >C34-C40 (F4)	mg/kg	120	260	3.5181808851	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276035.001	LB333986.004	Monocyclic	Benzene	mg/kg	0.1	4.6	0.00624804495	5	92
			Aromatic	Toluene	mg/kg	0.1	4.8	0.02027809738	5
			Ethylbenzene	mg/kg	0.1	4.8	0.01682724466	5	96
			m/p-xylene	mg/kg	0.2	9.3	0.03934508516	10	93
			o-xylene	mg/kg	0.1	4.9	0.01746632267	5	98
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	0.01756648957	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.2	9.37329373794	-	102
			d8-toluene (Surrogate)	mg/kg	-	10.0	9.39496535263	-	100
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	9.60885795268	-	90
		Totals	Total BTEX*	mg/kg	0.6	28	0	-	-



MATRIX SPIKES

SE276055 R0

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 identifier 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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276035.001	LB333986.004	Totals	Total Xylenes*	mg/kg	0.3	14	0.05681140783	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276035.001	LB333986.004	TRH C6-C10	mg/kg	25	74	0.85670701768	92.5	79
		TRH C6-C9	mg/kg	20	66	0.64517864817	80	82
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.2	9.37329373794	-
			d8-toluene (Surrogate)	mg/kg	-	10.0	9.39496535263	-
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	9.60885795268	-
		VPH F	Benzene (F0)	mg/kg	0.1	4.6	0.00624804495	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	46	0.85670701768	62.5
								72



MATRIX SPIKE DUPLICATES

SE276055 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

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 : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- 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 relevant report comments for further information.

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STATEMENT OF QA/QC
PERFORMANCE

SE276056 R0

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Leo Ho	Manager	Shane McDermott
Client	EI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Email	leo.ho@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	E26489 159-167 Darley Street West, Mona	SGS Reference	SE276056 R0
Order Number	E26489	Date Received	18 Dec 2024
Samples	1	Date Reported	24 Dec 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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.
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:

Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	3 items
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SAMPLE SUMMARY			
Sample counts by matrix	1 soil	Type of documentation received	COC
Date documentation received	18/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.5 °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		



HOLDING TIME SUMMARY

SE276056 R0

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

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M.1.7-1.8	SE276056.001	LB334016	17 Dec 2024	18 Dec 2024	14 Jan 2025	19 Dec 2024	14 Jan 2025	24 Dec 2024

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M.1.7-1.8	SE276056.001	LB333983	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	24 Dec 2024	23 Dec 2024

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
BH3M.1.7-1.8	SE276056.001	LB333946	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	28 Jan 2025	23 Dec 2024

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M.1.7-1.8	SE276056.001	LB334015	17 Dec 2024	18 Dec 2024	15 Jun 2025	19 Dec 2024	15 Jun 2025	24 Dec 2024

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
BH3M.1.7-1.8	SE276056.001	LB333946	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	28 Jan 2025	23 Dec 2024

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M.1.7-1.8	SE276056.001	LB333949	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	31 Dec 2024	24 Dec 2024

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M.1.7-1.8	SE276056.001	LB333949	17 Dec 2024	18 Dec 2024	31 Dec 2024	19 Dec 2024	31 Dec 2024	24 Dec 2024



SURROGATES

SE276056 R0

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	70 - 130%	94
d14-p-terphenyl (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	70 - 130%	107
d5-nitrobenzene (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	70 - 130%	108

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	60 - 130%	96
d4-1,2-dichloroethane (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	60 - 130%	81
d8-toluene (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	60 - 130%	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	60 - 130%	96
d4-1,2-dichloroethane (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	60 - 130%	81
d8-toluene (Surrogate)	BH3M.1.7-1.8	SE276056.001	%	60 - 130%	94



METHOD BLANKS

SE276056 R0

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 in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB334016.001	Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB333946.001	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(ah)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)	%	-	112
	2-fluorobiphenyl (Surrogate)	%	-	101
	d14-p-terphenyl (Surrogate)	%	-	108

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB334015.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB333946.001	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

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB333949.001	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 (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	89
		Bromofluorobenzene (Surrogate)	%	-	97
	Totals	Total BTEX*	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result
LB333949.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-



DUPLICATES

SE276056 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276056.001	LB334016.021	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE276057.010	LB334016.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276085.003	LB333983.011	% Moisture	%w/w	1	25.914149443823	7960339943	34	9
SE276085.012	LB333983.021	% Moisture	%w/w	1	4.57038391226	0.157790927	49	27

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276085.003	LB333946.014	Naphthalene	mg/kg	0.1	0.00119320890	0.0014734650	200	0
		2-methylnaphthalene	mg/kg	0.1	0.0005022751	0.0005819210	200	0
		1-methylnaphthalene	mg/kg	0.1	0.00088728290	0.0006550544	200	0
		Acenaphthylene	mg/kg	0.1	0.00153018490	0.0011145993	200	0
		Acenaphthene	mg/kg	0.1	0.00143699620	0.0005194203	200	0
		Fluorene	mg/kg	0.1	0.00296617760	0.0015482768	200	0
		Phenanthrene	mg/kg	0.1	0.00240805380	0.0019397728	200	0
		Anthracene	mg/kg	0.1	0.00495660460	0.0034856467	200	0
		Fluoranthene	mg/kg	0.1	0.00153344490	0.0012304871	200	0
		Pyrene	mg/kg	0.1	0.00186686860	0.0018486528	200	0
		Benzo(a)anthracene	mg/kg	0.1	0.00735669190	0.0064690174	200	0
		Chrysene	mg/kg	0.1	0.00834336000	0.0074637613	200	0
		Benzo(b&i)fluoranthene	mg/kg	0.1	0.00278923100	0.0018897900	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	0.00283153040	0.0019184492	200	0
		Benzo(a)pyrene	mg/kg	0.1	0.00241965460	0.0014950941	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.00083999890	0.0007405266	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	9.32816853090	0.0001912923	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0.00178552750	0.0015797563	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.121	0.121	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.242	0.242	134	0
		Total PAH (18)	mg/kg	0.8	0	0	200	0
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.55318207440	0.5700934760	30	3
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.48117274800	0.4975683009	30	3
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.52305024810	0.5416467662	30	3
SE276085.012	LB333946.024	Naphthalene	mg/kg	0.1	0.00434452830	0.0036093582	200	0
		2-methylnaphthalene	mg/kg	0.1	0.00373052810	0.0029589471	200	0
		1-methylnaphthalene	mg/kg	0.1	0.00323556060	0.0026914319	200	0
		Acenaphthylene	mg/kg	0.1	0.01005819580	0.0089827148	200	0
		Acenaphthene	mg/kg	0.1	0.00054860910	0.0004301453	200	0
		Fluorene	mg/kg	0.1	0.00187295300	0.0024449845	200	0
		Phenanthrene	mg/kg	0.1	0.03038277420	0.0344490072	200	0
		Anthracene	mg/kg	0.1	0.01516919180	0.0140508165	200	0
		Fluoranthene	mg/kg	0.1	0.04469167420	0.0525014178	200	0
		Pyrene	mg/kg	0.1	0.04969512420	0.0566715294	200	0
		Benzo(a)anthracene	mg/kg	0.1	0.02573786710	0.0311621876	200	0
		Chrysene	mg/kg	0.1	0.04282760550	0.0377575158	200	0
		Benzo(b&i)fluoranthene	mg/kg	0.1	0.04105024290	0.0365437047	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	0.01871769520	0.0224783343	200	0
		Benzo(a)pyrene	mg/kg	0.1	0.03401985090	0.0313312913	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.02522005840	0.0219354308	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	0.00806577000	0.0066126430	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0.03694456720	0.0306180428	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.121	0.121	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.242	0.242	134	0
		Total PAH (18)	mg/kg	0.8	0	0	200	0
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.54351589790	0.5216432290	30	4
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.48080588280	0.4718656452	30	2



DUPLICATES

SE276056 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276085.012	LB333946.024	Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.50832915560.4931634743	30	3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]JAN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276056.001	LB334015.021	Arsenic, As	mg/kg	1	1	1	121	12
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	7.2	9.1	36	23
		Copper, Cu	mg/kg	0.5	1.3	1.2	71	5
		Nickel, Ni	mg/kg	0.5	0.5	0.7	115	23
		Lead, Pb	mg/kg	1	2	2	73	5
		Zinc, Zn	mg/kg	2	<2.0	2.3	139	15
SE276057.010	LB334015.014	Arsenic, As	mg/kg	1	5	4	51	15
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	12	8.7	35	29
		Copper, Cu	mg/kg	0.5	24	23	32	7
		Nickel, Ni	mg/kg	0.5	6.4	5.1	39	23
		Lead, Pb	mg/kg	1	5	4	51	22
		Zinc, Zn	mg/kg	2	53	45	34	16

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276085.003	LB333946.014	TRH C10-C14	mg/kg	20	9.51212866065.5209878562	200	0	
		TRH C15-C28	mg/kg	45	11.11091644038.4041954188	181	0	
		TRH C29-C36	mg/kg	45	14.32765679017.3942255952	176	0	
		TRH C37-C40	mg/kg	100	9.70166723342.4233860379	200	0	
		TRH C10-C36 Total	mg/kg	110	0	0	200	0
		TRH >C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	11.50769906266.5715730883	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	35.37726914648.4226628383	200	0	
		TRH >C34-C40 (F4)	mg/kg	120	27.16358517618.4507126529	200	0	
SE276085.012	LB333946.024	TRH C10-C14	mg/kg	20	2.84714457132.2540773923	200	0	
		TRH C15-C28	mg/kg	45	10.59922908637.8555019234	200	0	
		TRH C29-C36	mg/kg	45	16.67552947258.1889703016	200	0	
		TRH C37-C40	mg/kg	100	6.55961847870.9159827605	200	0	
		TRH C10-C36 Total	mg/kg	110	0	0	200	0
		TRH >C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	3.97840438622.9632253359	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	21.09926188293.4569264545	200	0	
		TRH >C34-C40 (F4)	mg/kg	120	11.54264911852.7606116377	200	0	

VOC's in Soil

Method: ME-(AU)-[ENV]JAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276085.003	LB333949.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	0.00100849400.0008606081	200	0	
			Toluene	mg/kg	0.1	0.00965788720.0098246611	200	0	
			Ethylbenzene	mg/kg	0.1	0.00067238000.0006414797	200	0	
			m/p-xylene	mg/kg	0.2	0.00171787180.0016118228	200	0	
			o-xylene	mg/kg	0.1	0.00075848790.0006357819	200	0	
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	0	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.68616157836.6223807188	50	1	
			d8-toluene (Surrogate)	mg/kg	-	7.91832752457.1582074036	50	10	
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.19558758647.5727425973	50	8	
		Totals	Total BTEX*	mg/kg	0.6	0	0	200	0
	Total Xylenes*	mg/kg	0.3	0.00247635980.0022476047	200	0			
SE276085.012	LB333949.024	Monocyclic Aromatic	Benzene	mg/kg	0.1	0.00064846700.0007244050	200	0	
			Toluene	mg/kg	0.1	0.01028194970.0107511975	200	0	
			Ethylbenzene	mg/kg	0.1	0.00068836450.0006670704	200	0	
			m/p-xylene	mg/kg	0.2	0.00361084590.0034023235	200	0	
			o-xylene	mg/kg	0.1	0.00476103840.0026098605	200	0	
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	0	0.0018502829	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.07105285059.4245160237	50	7	



DUPLICATES

SE276056 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276085.012	LB333949.024	Surrogates	d8-toluene (Surrogate)	mg/kg	-	11.0317870289	1.1689228996	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	11.0138577820	1.0470482042	50	0
		Totals	Total BTEX*	mg/kg	0.6	0	0	200	0
			Total Xylenes*	mg/kg	0.3	0.0083718844	0.0060121841	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276085.003	LB333949.014		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.6861615783	6.6223807188	50	1
			d8-toluene (Surrogate)	mg/kg	-	7.9183275245	7.1582074036	50	10
		VPH F Bands	Bromofluorobenzene (Surrogate)	mg/kg	-	8.1955875864	7.5727425973	50	8
			Benzene (F0)	mg/kg	0.1	0.0010084940	0.0008606081	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0
SE276085.012	LB333949.024		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.0710528505	9.4245160237	50	7
			d8-toluene (Surrogate)	mg/kg	-	11.0317870289	1.1689228996	50	1
		VPH F Bands	Bromofluorobenzene (Surrogate)	mg/kg	-	11.0138577820	1.0470482042	50	0
			Benzene (F0)	mg/kg	0.1	0.0006484670	0.0007244050	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0



LABORATORY CONTROL SAMPLES

SE276056 R0

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 %
LB334016.002	Mercury	mg/kg	0.05	0.20	0.2	80 - 120	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333946.002	Naphthalene	mg/kg	0.1	4.2	4	60 - 140	105
	Acenaphthylene	mg/kg	0.1	4.1	4	60 - 140	101
	Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	100
	Phenanthrene	mg/kg	0.1	4.2	4	60 - 140	104
	Anthracene	mg/kg	0.1	4.0	4	60 - 140	100
	Fluoranthene	mg/kg	0.1	3.9	4	60 - 140	98
	Pyrene	mg/kg	0.1	4.3	4	60 - 140	108
	Benzo(a)pyrene	mg/kg	0.1	4.5	4	60 - 140	112
	Surrogates						
	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	110
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	107
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	100

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB334015.002	Arsenic, As	mg/kg	1	360	318.22	80 - 120	114
	Cadmium, Cd	mg/kg	0.3	3.8	4.81	70 - 130	79
	Chromium, Cr	mg/kg	0.5	44	38.31	80 - 120	115
	Copper, Cu	mg/kg	0.5	330	290	80 - 120	112
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	104
	Lead, Pb	mg/kg	1	95	89.9	80 - 120	105
	Zinc, Zn	mg/kg	2	290	273	80 - 120	108

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333946.002	TRH C10-C14	mg/kg	20	50	40	60 - 140	125
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	112
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	100
	TRH F Bands						
	TRH >C10-C16	mg/kg	25	49	40	60 - 140	121
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	107
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	101

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333949.002	Monocyclic	Benzene	mg/kg	0.1	4.4	5	60 - 140	88
	Aromatic	Toluene	mg/kg	0.1	4.8	5	60 - 140	96
		Ethylbenzene	mg/kg	0.1	4.6	5	60 - 140	91
		m/p-xylene	mg/kg	0.2	9.0	10	60 - 140	90
		o-xylene	mg/kg	0.1	4.6	5	60 - 140	92

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333949.002	TRH C6-C10	mg/kg	25	72	92.5	60 - 140	78
	TRH C6-C9	mg/kg	20	64	80	60 - 140	79
	VPH F Bands						
	TRH C6-C10 minus BTEX (F1)	mg/kg	25	45	62.5	60 - 140	72



MATRIX SPIKES

SE276056 R0

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276057.001	LB334016.004	Mercury	mg/kg	0.05	0.20	<0.05	0.2	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276048.008	LB333946.004	Naphthalene	mg/kg	0.1	4.5	0.03681760411	4	111
		2-methylnaphthalene	mg/kg	0.1	<0.1	0.04103254812	-	-
		1-methylnaphthalene	mg/kg	0.1	0.1	0.03673085767	-	-
		Acenaphthylene	mg/kg	0.1	4.3	0.01085202480	4	108
		Acenaphthene	mg/kg	0.1	4.2	0.00254722504	4	105
		Fluorene	mg/kg	0.1	<0.1	0.00245945273	-	-
		Phenanthrene	mg/kg	0.1	4.3	0.01180205183	4	108
		Anthracene	mg/kg	0.1	4.2	0.00899248920	4	106
		Fluoranthene	mg/kg	0.1	4.1	0.02656744898	4	102
		Pyrene	mg/kg	0.1	4.4	0.03988950514	4	110
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01802445174	-	-
		Chrysene	mg/kg	0.1	<0.1	0.01557344745	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.02606944105	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.01420161453	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.7	0.02855246400	4	117
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.02005493538	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0.00483074587	-	-
		Benzo(ghi)perylene	mg/kg	0.1	0.1	0.06592706768	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	4.7	0	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.8	0.121	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.8	0.242	-	-
		Total PAH (18)	mg/kg	0.8	35	0	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.56312387769	-	114
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.50929003734	-	103
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.53760014726	-	96

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276057.001	LB334015.004	Arsenic, As	mg/kg	1	50	4	50	93
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	86
		Chromium, Cr	mg/kg	0.5	49	7.7	50	82
		Copper, Cu	mg/kg	0.5	55	11	50	87
		Nickel, Ni	mg/kg	0.5	46	4.2	50	84
		Lead, Pb	mg/kg	1	45	4	50	83
		Zinc, Zn	mg/kg	2	68	30	50	76

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276048.008	LB333946.004	TRH C10-C14	mg/kg	20	55	4.80754315570	40	125
		TRH C15-C28	mg/kg	45	210	07.5525364089	40	249 ☹
		TRH C29-C36	mg/kg	45	310	62.8934216990	40	367 ☹
		TRH C37-C40	mg/kg	100	<100	42.0032013729€	-	-
		TRH >C10-C36 Total	mg/kg	110	570	70.4459581079	-	-
		TRH >C10-C40 Total (F bands)	mg/kg	210	620	25.4088072029	-	-
	TRH F Bands	TRH >C10-C16	mg/kg	25	57	6.30394510191	40	126
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	57	0	-	-
		TRH >C16-C34 (F3)	mg/kg	90	390	25.4088072029	40	417 ☹
		TRH >C34-C40 (F4)	mg/kg	120	170	35.5114669320€	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276048.008	LB333949.004	Monocyclic	Benzene	mg/kg	0.1	4.7	0.02064789869	5	93
			Aromatic	Toluene	mg/kg	0.1	5.2	0.02895636623	5
			Ethylbenzene	mg/kg	0.1	5.0	0.05409364334	5	99
			m/p-xylene	mg/kg	0.2	9.8	0.06684981990	10	98
			o-xylene	mg/kg	0.1	5.1	0.01977383072	5	102



MATRIX SPIKES

SE276056 R0

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 identifier 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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276048.008	LB333949.004	Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	0.12864192971	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	9.65221076589	-	86
			d8-toluene (Surrogate)	mg/kg	-	11.2	9.88343804876	-	112
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.7	9.63306905355	-	107
			Totals	Total BTEX*	mg/kg	0.6	30	0	-
			Total Xylenes*	mg/kg	0.3	15	0.08662365062	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE276048.008	LB333949.004	TRH C6-C10	mg/kg	25	89	0.31019523459	92.5	96	
		TRH C6-C9	mg/kg	20	75	0	80	94	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	9.65221076589	-	86
			d8-toluene (Surrogate)	mg/kg	-	11.2	9.88343804876	-	112
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.7	9.63306905355	-	107
		VPH F	Benzene (F0)	mg/kg	0.1	4.7	0.02064789869	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	59	0.31019523459	62.5	94



MATRIX SPIKE DUPLICATES

SE276056 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

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 : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- 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 relevant report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE276733 R0

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SGS Reference **SE276733 R0**
Date Received 14 Jan 2025
Date Reported 29 Jan 2025

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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.

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	VOCs in Water	2 items
	Volatile Petroleum Hydrocarbons in Water	2 items

SAMPLE SUMMARY

Sample counts by matrix	7 Water	Type of documentation received	COC
Date documentation received	14/1/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15.3°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		



HOLDING TIME SUMMARY

SE276733 R0

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

Mercury (dissolved) in Water

Method: ME-(AU)-ENVJAN311(Porth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE276733.001	LB335038	14 Jan 2025	14 Jan 2025	11 Feb 2025	15 Jan 2025	11 Feb 2025	15 Jan 2025
BH2M	SE276733.002	LB335038	14 Jan 2025	14 Jan 2025	11 Feb 2025	15 Jan 2025	11 Feb 2025	15 Jan 2025
BH3M	SE276733.003	LB335038	14 Jan 2025	14 Jan 2025	11 Feb 2025	15 Jan 2025	11 Feb 2025	15 Jan 2025
GW-QD1	SE276733.004	LB335038	14 Jan 2025	14 Jan 2025	11 Feb 2025	15 Jan 2025	11 Feb 2025	15 Jan 2025
GW-QR1	SE276733.005	LB335038	14 Jan 2025	14 Jan 2025	11 Feb 2025	15 Jan 2025	11 Feb 2025	15 Jan 2025

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE276733.001	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025
BH2M	SE276733.002	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025
BH3M	SE276733.003	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025
GW-QD1	SE276733.004	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	21 Jan 2025
GW-QR1	SE276733.005	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	21 Jan 2025

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-ENVJAN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE276733.001	LB335403	14 Jan 2025	14 Jan 2025	13 Jul 2025	20 Jan 2025	13 Jul 2025	21 Jan 2025
BH2M	SE276733.002	LB335403	14 Jan 2025	14 Jan 2025	13 Jul 2025	20 Jan 2025	13 Jul 2025	21 Jan 2025
BH3M	SE276733.003	LB335403	14 Jan 2025	14 Jan 2025	13 Jul 2025	20 Jan 2025	13 Jul 2025	21 Jan 2025
GW-QD1	SE276733.004	LB335403	14 Jan 2025	14 Jan 2025	13 Jul 2025	20 Jan 2025	13 Jul 2025	21 Jan 2025
GW-QR1	SE276733.005	LB335403	14 Jan 2025	14 Jan 2025	13 Jul 2025	20 Jan 2025	13 Jul 2025	21 Jan 2025

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-ENVJAN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE276733.001	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025
BH2M	SE276733.002	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025
BH3M	SE276733.003	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025
GW-QD1	SE276733.004	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025
GW-QR1	SE276733.005	LB335166	14 Jan 2025	14 Jan 2025	21 Jan 2025	16 Jan 2025	25 Feb 2025	20 Jan 2025

VOCs in Water

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE276733.001	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
BH2M	SE276733.002	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
BH3M	SE276733.003	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QD1	SE276733.004	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QR1	SE276733.005	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QTB1	SE276733.007	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QTS1	SE276733.008	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE276733.001	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
BH2M	SE276733.002	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
BH3M	SE276733.003	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QD1	SE276733.004	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QR1	SE276733.005	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QTB1	SE276733.007	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025
GW-QTS1	SE276733.008	LB335143	14 Jan 2025	14 Jan 2025	28 Jan 2025	15 Jan 2025	28 Jan 2025	16 Jan 2025



SURROGATES

SE276733 R0

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 identifier 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	SE276733.001	%	40 - 130%	56
	BH2M	SE276733.002	%	40 - 130%	73
	BH3M	SE276733.003	%	40 - 130%	65
d14-p-terphenyl (Surrogate)	BH1M	SE276733.001	%	40 - 130%	56
	BH2M	SE276733.002	%	40 - 130%	69
	BH3M	SE276733.003	%	40 - 130%	63
d5-nitrobenzene (Surrogate)	BH1M	SE276733.001	%	40 - 130%	53
	BH2M	SE276733.002	%	40 - 130%	68
	BH3M	SE276733.003	%	40 - 130%	61

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE276733.001	%	40 - 130%	89
	BH2M	SE276733.002	%	40 - 130%	90
	BH3M	SE276733.003	%	40 - 130%	89
	GW-QD1	SE276733.004	%	40 - 130%	87
	GW-QR1	SE276733.005	%	40 - 130%	93
	GW-QTB1	SE276733.007	%	40 - 130%	93
	GW-QTS1	SE276733.008	%	40 - 130%	114
d4-1,2-dichloroethane (Surrogate)	BH1M	SE276733.001	%	40 - 130%	76
	BH2M	SE276733.002	%	40 - 130%	74
	BH3M	SE276733.003	%	40 - 130%	75
	GW-QD1	SE276733.004	%	40 - 130%	111
	GW-QR1	SE276733.005	%	40 - 130%	71
	GW-QTB1	SE276733.007	%	40 - 130%	87
	GW-QTS1	SE276733.008	%	40 - 130%	104
d8-toluene (Surrogate)	BH1M	SE276733.001	%	40 - 130%	63
	BH2M	SE276733.002	%	40 - 130%	73
	BH3M	SE276733.003	%	40 - 130%	65
	GW-QD1	SE276733.004	%	40 - 130%	105
	GW-QR1	SE276733.005	%	40 - 130%	74
	GW-QTB1	SE276733.007	%	40 - 130%	90
	GW-QTS1	SE276733.008	%	40 - 130%	103

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE276733.001	%	40 - 130%	89
	BH2M	SE276733.002	%	40 - 130%	90
	BH3M	SE276733.003	%	40 - 130%	89
	GW-QD1	SE276733.004	%	40 - 130%	87
	GW-QR1	SE276733.005	%	40 - 130%	93
d4-1,2-dichloroethane (Surrogate)	BH1M	SE276733.001	%	60 - 130%	76
	BH2M	SE276733.002	%	60 - 130%	74
	BH3M	SE276733.003	%	60 - 130%	75
	GW-QD1	SE276733.004	%	60 - 130%	111
	GW-QR1	SE276733.005	%	60 - 130%	71
d8-toluene (Surrogate)	BH1M	SE276733.001	%	40 - 130%	63
	BH2M	SE276733.002	%	40 - 130%	73
	BH3M	SE276733.003	%	40 - 130%	65
	GW-QD1	SE276733.004	%	40 - 130%	105
	GW-QR1	SE276733.005	%	40 - 130%	74



METHOD BLANKS

SE276733 R0

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(Porth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB335038.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB335166.001	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(ah)anthracene	µg/L	0.1	<0.1
	Benzo(ghi)perylene	µg/L	0.1	<0.1
Surrogates	d5-nitrobenzene (Surrogate)	%	-	70
	2-fluorobiphenyl (Surrogate)	%	-	54
	d14-p-terphenyl (Surrogate)	%	-	84

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB335403.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB335166.001	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

Sample Number		Parameter	Units	LOR	Result
LB335143.001	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
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1
		1,1-dichloroethene	µg/L	0.5	<0.5
		Iodomethane	µg/L	5	<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



METHOD BLANKS

SE276733 R0

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)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB335143.001	Halogenated Aliphatics	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
		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
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		o-xylene	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	0.5	<0.5
		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 (VOC)*	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	74
		d8-toluene (Surrogate)	%	-	76
		Bromofluorobenzene (Surrogate)	%	-	89
	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)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB335143.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	74
		d8-toluene (Surrogate)	%	-	76



METHOD BLANKS

SE276733 R0

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.

Volatile Petroleum Hydrocarbons in Water (continued)

Method: ME-(AU)-ENVJAN433

Sample Number		Parameter	Units	LOR	Result
LB335143.001	Surrogates	Bromofluorobenzene (Surrogate)	%	-	89



DUPLICATES

SE276733 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276726.001	LB335038.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	194	86
SE276733.005	LB335038.023	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276733.003	LB335166.028	Naphthalene	µg/L	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
		Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
		Acenaphthene	µg/L	0.1	<0.1	<0.1	200	0
		Fluorene	µg/L	0.1	<0.1	<0.1	200	0
		Phenanthrene	µg/L	0.1	<0.1	<0.1	200	0
		Anthracene	µg/L	0.1	<0.1	<0.1	200	0
		Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
		Pyrene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
		Chrysene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates						
		d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.30	30	3
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.32	30	2
		d14-p-terphenyl (Surrogate)	µg/L	-	0.3	0.31	30	2

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276882.009	LB335403.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276733.003	LB335166.028	TRH C10-C14	µg/L	50	<50	<50	200	0
		TRH C15-C28	µg/L	200	<200	<200	200	0
		TRH C29-C36	µg/L	200	<200	<200	200	0
		TRH C37-C40	µg/L	200	<200	<200	200	0
		TRH C10-C40	µg/L	320	<320	<320	200	0
		TRH F Bands						
		TRH >C10-C16	µg/L	60	<60	<60	200	0
		TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	200	0
		TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
		TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276667.002	LB335143.024	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	200	0
			Aliphatics	Chloromethane	µg/L	5	<5	<5	200
		Vinyl chloride (Chloroethene)		µg/L	0.3	<0.3	<0.3	200	0
		Bromomethane		µg/L	10	<10	<10	200	0
		Chloroethane	µg/L	5	<5	<5	200	0	



DUPLICATES

SE276733 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOCs in Water (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276667.002	LB335143.024	Halogenated	Trichlorofluoromethane	µg/L	1	<1	<1	200	0
		Aliphatics	1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			Iodomethane	µg/L	5	<5	<5	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	200	0
			Allyl chloride	µg/L	2	<2	<2	200	0
			trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			Bromochloromethane	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	200	0
			Dibromomethane	µg/L	0.5	<0.5	<0.5	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	200	0
			1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	200	0
			Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	200	0
		Halogenated	Chlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatics	Bromobenzene	µg/L	0.5	<0.5	<0.5	200	0
			2-chlorotoluene	µg/L	0.5	<0.5	<0.5	200	0
			4-chlorotoluene	µg/L	0.5	<0.5	<0.5	200	0
			1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	200	0
			1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
		Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	200	0
			n-propylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			tert-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			sec-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	200	0
			n-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	<0.5	<0.5	200	0
		Compounds	2-nitropropane	µg/L	100	<100	<100	200	0
		Oxygenated	Acetone (2-propanone)	µg/L	10	<10	<10	200	0
		Compounds	MtBE (Methyl-tert-butyl ether)	µg/L	0.5	<0.5	<0.5	200	0
			Vinyl acetate*	µg/L	10	<10	<10	200	0
			MEK (2-butanone)	µg/L	10	<10	<10	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	200	0
			2-hexanone (MBK)	µg/L	5	<5	<5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Sulphonated	Carbon disulfide	µg/L	2	<2	<2	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.3	9.4	30	25
			d8-toluene (Surrogate)	µg/L	-	6.3	10	30	50 Ⓢ
			Bromofluorobenzene (Surrogate)	µg/L	-	9.4	10	30	6
		Totals	Total BTEX	µg/L	3	<3	<3	200	0



DUPLICATES

SE276733 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOCs in Water (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276667.002	LB335143.024	Totals	Total VOC	µg/L	10	<10	<10	200	0
		Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5	<0.5	200	0
			Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	200	0
			Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	200	0
			Bromoform (THM)	µg/L	0.5	<0.5	<0.5	200	0
SE276733.004	LB335143.023	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
			Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	11.1	9.2	30	19
			d8-toluene (Surrogate)	µg/L	-	10.5	6.6	30	45 ①
			Bromofluorobenzene (Surrogate)	µg/L	-	8.7	9.3	30	7
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE276667.002	LB335143.024		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.3	9.4	30	25
			d8-toluene (Surrogate)	µg/L	-	6.3	10	30	50 ①
			Bromofluorobenzene (Surrogate)	µg/L	-	9.4	10	30	6
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
SE276733.004	LB335143.023		TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0
			TRH C6-C10	µg/L	50	<50	<50	200	0
		Surrogates	TRH C6-C9	µg/L	40	<40	<40	200	0
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	11.1	9.2	30	19
			d8-toluene (Surrogate)	µg/L	-	10.5	6.6	30	45 ①
			Bromofluorobenzene (Surrogate)	µg/L	-	8.7	9.3	30	7
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0



LABORATORY CONTROL SAMPLES

SE276733 R0

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 Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB335166.002	Naphthalene	µg/L	0.1	35	40	60 - 140	88
	Acenaphthylene	µg/L	0.1	34	40	60 - 140	86
	Acenaphthene	µg/L	0.1	37	40	60 - 140	92
	Phenanthrene	µg/L	0.1	37	40	60 - 140	94
	Anthracene	µg/L	0.1	34	40	60 - 140	84
	Fluoranthene	µg/L	0.1	38	40	60 - 140	94
	Pyrene	µg/L	0.1	38	40	60 - 140	94
	Benzo(a)pyrene	µg/L	0.1	40	40	60 - 140	101
	Surrogates						
	d5-nitrobenzene (Surrogate)	µg/L	-	0.4	0.5	40 - 130	80
	2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	78
	d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	88

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB335403.002	Arsenic	µg/L	1	18	20	80 - 120	91
	Cadmium	µg/L	0.1	21	20	80 - 120	105
	Chromium	µg/L	1	21	20	80 - 120	106
	Copper	µg/L	1	22	20	80 - 120	108
	Lead	µg/L	1	21	20	80 - 120	104
	Nickel	µg/L	1	21	20	80 - 120	103
	Zinc	µg/L	5	22	20	80 - 120	112

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB335166.002	TRH C10-C14	µg/L	50	920	1200	60 - 140	77
	TRH C15-C28	µg/L	200	1000	1200	60 - 140	85
	TRH C29-C36	µg/L	200	1000	1200	60 - 140	85
	TRH F Bands						
	TRH >C10-C16	µg/L	60	1000	1200	60 - 140	83
	TRH >C16-C34 (F3)	µg/L	500	1000	1200	60 - 140	87
	TRH >C34-C40 (F4)	µg/L	500	510	600	60 - 140	85

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB335143.002	Halogenated						
	1,1-dichloroethene	µg/L	0.5	36	45.45	60 - 140	79
	Aliphatics						
	1,2-dichloroethane	µg/L	0.5	37	45.45	60 - 140	81
	Trichloroethene (Trichloroethylene, TCE)	µg/L	0.5	34	45.45	60 - 140	76
	Halogenated						
	Chlorobenzene	µg/L	0.5	63	45.45	60 - 140	139
	Monocyclic						
	Benzene	µg/L	0.5	29	45.45	60 - 140	64
	Aromatic						
	Toluene	µg/L	0.5	31	45.45	60 - 140	68
	Ethylbenzene	µg/L	0.5	51	45.45	60 - 140	112
	m/p-xylene	µg/L	1	100	90.9	60 - 140	113
	o-xylene	µg/L	0.5	53	45.45	60 - 140	117
	Surrogates						
	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.3	10	60 - 140	73
	d8-toluene (Surrogate)	µg/L	-	7.2	10	70 - 130	72
	Bromofluorobenzene (Surrogate)	µg/L	-	11.2	10	70 - 130	112
	Trihalomethan						
	Chloroform (THM)	µg/L	0.5	36	45.45	60 - 140	80

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB335143.002	TRH C6-C10	µg/L	50	780	946.63	60 - 140	82
	TRH C6-C9	µg/L	40	690	818.71	60 - 140	84
	Surrogates						
	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.3	10	60 - 140	73
	d8-toluene (Surrogate)	µg/L	-	7.2	10	70 - 130	72
	Bromofluorobenzene (Surrogate)	µg/L	-	11.2	10	70 - 130	112
	VPH F Bands						
	TRH C6-C10 minus BTEX (F1)	µg/L	50	510	639.67	60 - 140	80



MATRIX SPIKES

SE276733 R0

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 identifier 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(Porth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276667.001	LB335038.004	Mercury	mg/L	0.0001	0.0020	<0.0001	0.008	95

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE276726.001	LB335403.004	Arsenic	µg/L	1	19	<1	20	96
		Cadmium	µg/L	0.1	21	<0.1	20	105
		Chromium	µg/L	1	22	2	20	101
		Copper	µg/L	1	22	1	20	102
		Lead	µg/L	1	21	<1	20	100
		Nickel	µg/L	1	29	10	20	97
		Zinc	µg/L	5	29	5	20	121

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE276792.013	LB335143.025	Monocyclic	Benzene	µg/L	0.5	<0.5	45.45	113
		Aromatic	Toluene	µg/L	0.5	<0.5	45.45	120
			Ethylbenzene	µg/L	0.5	<0.5	45.45	117
			m/p-xylene	µg/L	1	<1	90.9	117
			o-xylene	µg/L	0.5	<0.5	45.45	118
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.8	-	110
			d8-toluene (Surrogate)	µg/L	-	6.7	-	108
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	-	113
		Totals	Total BTEX	µg/L	3	<3	-	-

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%	
SE276792.013	LB335143.025	TRH C6-C10	µg/L	50	<50	946.63	104	
		TRH C6-C9	µg/L	40	<40	818.71	105	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.8	-	110
			d8-toluene (Surrogate)	µg/L	-	6.7	-	108
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	-	113
		VPH F	Benzene (F0)	µg/L	0.5	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	639.67	103



MATRIX SPIKE DUPLICATES

SE276733 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

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 : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- 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 relevant report comments for further information.

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