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LAWRENCE STREET PTY LTD

Detailed Site Investigation

10-28 Lawrence Street, Freshwater, NSW 2096

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EXECUTIVE SUMMARY

Lawrence Street Pty Ltd ('the client') engaged EI Australia (EI) to undertake a Detailed Site Investigation (DSI) at the property located at 10-28 Lawrence Street, Freshwater, NSW 2096 ('the site').

The site is located 13km north-east of the Sydney central business district (CBD), within the local government area (LGA) of Northern Beaches Council (**Figure 1**, **Appendix A**). It comprises Lot 1 of Deposited Plan (DP) 900061, Lot 1 of DP100563, Lot 1 of DP578401, Lot 45 of DP974653 and Lot 1 of DP595422. The combined property covers an area of approximately 2,527 m^2 (**Figure 2**, **Appendix A**). At the time of this investigation, the land was occupied by multiple mixed commercial and residential buildings, with on-grade car parking areas.

The purpose of this DSI was to assess the contamination status of the site to assist in determining its suitability for the proposed redevelopment, ensure compliance with the State Environmental Planning Policy (Resilience and Hazards) 2021, and provide recommendations for the management of contaminated soil and/or groundwater, if identified.

Scope

The scope of works included:

A desktop review, including review of relevant topographical, geological and soil landscape maps, previous reports, historical aerial photographs, NSW EPA contaminated land database and NSW Government PFAS investigation program database;

Drilling, sampling and logging of eight (4) boreholes down to natural soils within the accessible locations across the site;

Multiple level soil sampling of both fill and natural soils;

Conversion of one (1) boreholes into monitoring well;

Completion of one groundwater monitoring event (GME); and

Laboratory analysis of selected soil and water samples for relevant analytical parameters.

Findings

The key findings of the assessment were as follows:

- The site was occupied by three two-storey brick buildings with metal roofs (west to east), and two single-storey brick buildings with concrete roofs. The single-storey building at the far eastern end of the site includes a rooftop parking area.
- The site was currently occupied by multiple commercial businesses inclusive of a dry-cleaners business (28 Lawrence Street), retail shops, café and restaurants, and office units.
- There were no evidences of underground storage tanks (USTs) or above ground storage tanks (ASTs) installed on the site.
- The subsurface profile consisted of surface pavement overlying fill (silty sand up to 0.78m thickness), then natural sandstone bedrock. Standing water level was measured at approx. 23.78m AHD. Groundwater found to be acidic (pH 4.6), fresh (EC 299 µS/cm) and oxidising (Redox 71.4 mV) and inferred to be flowing easterly, towards Freshwater Beach.
- No visual evidence of asbestos fragments were found across the site during intrusive works or site walkover, however ash and slag was identified in the upper fill layer of soil at EIBH3.

- A sweet odour was noted within the sandstone at EIBH2M. A sulphurous like odour was also noted clay pockets interbedded within the sandstone (minor inclusions). No notable or suspicious odours were recorded in the soil profiles at the remaining borehole locations.
- No contaminants of concern (primary metals, VOCs, BTEX compounds, PAHs, OCPs, OPPs and PCBs) were reported in soil at concentrations above adopted health-based or ecological criteria, except for the following:
  - Lead in EIBH3_0.3-0.4 (1,400 mg/kg), marginally exceeding both the human-health and ecological thresholds (1,200 and 1,100 mg/kg, respectively); and
  - Zinc in EIBH3_0.3-0.4 (1,700 mg/kg), exceeds the ecological threshold (360 mg/kg).
- Asbestos was not detected (at a reporting limit of 0.01 %w/w) in samples of fill recovered from each of the eight investigation locations.
- Contaminant concentrations in groundwater were reported below the adopted criteria, with the exception of the following:
  - Copper and Zinc were reported in groundwater at a concentration that marginally exceeded adopted criterion for marine water levels; and
  - Aluminium was reported at a concentration that exceeded adopted criterion for recreational water levels however the risk from priority metals in groundwater was low and acceptable.
- Historical offsite groundwater investigations in proximity to the site boundary (**Section 3.1**) identified TRH (fractions F2 and F3) above the acceptance criteria at monitoring wells BH101M up to BH103M (down / cross gradient of the site) along with detections of tetrachloroethene and PAHs cross gradient.
- Data gaps were identified in the current conceptual site model and those will require closure after demolition:
  - The condition of soil within the footprint of the current buildings and/or structures to satisfy requirements of NSW EPA (2022) Sampling Design part 1.
  - Further assess groundwater quality conditions with the installation of two new groundwater wells (total of at least three monitoring wells), so that a more comprehensive groundwater monitoring campaign can be conducted within the redevelopment area.

Based on the findings of this DSI with limited sampling, and in accordance with EI's Statement of Limitations (**Section 11**), EI considers that the site can be made suitable for the proposed development, subject to the implementation of the recommendations listed in **Section 10**.

Recommendations

Based on the findings of this DSI with limited sampling, the following recommendations are provided:

- Before commencement of demolition works, a Hazardous Materials Survey (HMS) shall be completed by a suitably qualified consultant, such as a SafeWork NSW Licensed Asbestos Assessor to identify any hazardous materials present within the existing building fabrics.
  - The HMS should guide subsequent building and infrastructure demolition at the site, to prevent release of hazards materials.
- Following demolition a data gap closure investigation which be undertaken to further characterise soil and groundwater as follows:
  - Determine the condition of soil and impacts from potential contaminants within the footprints of the existing buildings;

  - Increase soil sampling location density to satisfy requirements of *NSW EPA (2020) Sampling Design Guidelines*;
  - Soil sampling from test pits to increase characterisation of soil, particularly for the presence of asbestos in fill;
  - Install at least two new groundwater monitoring wells to complement the existing one (total of at least three monitoring wells) to enable triangulation and determine groundwater flow direction (potentiometric slope);
  - Undertake an additional groundwater monitoring event so that a more comprehensive groundwater quality monitoring campaign can be conducted within the redevelopment area.
- A waste management plan should be prepared, to classify of waste material 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;
- Any material being imported to the site should be validated as suitable for the intended use in accordance with NSW EPA (2014) guidelines.
- An unexpected finds protocol following site demolition and during site excavation to ensure any potential contamination sources (such as soil staining and odour, buried asbestos or underground storage tanks) are identified and managed in accordance with NSW EPA legislation and guidelines;

EI emphasise that these recommendations can be managed through the development application process, in accordance with State Environmental Planning Policy (Resilience and Hazards) 2021.

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1. INTRODUCTION

1.1. Background and Purpose

Lawrence Street Pty Ltd (‘the client’) engaged EI Australia (EI) to undertake a Detailed Site Investigation (DSI) with limited sampling for the property located at 10-28 Lawrence Street, Freshwater, NSW 2096 (‘the site’).

The site is located 13km north-east of the Sydney central business district (CBD), within the local government area (LGA) of Northern Beaches Council (**Figure 1**, **Appendix A**). It comprises Lot 1 of Deposited Plan (DP) 900061, Lot 1 of DP100563, Lot 1 of DP578401, Lot 45 of DP974653 and Lot 1 of DP595422. The combined property covers an area of approximately 2,527 m^2 (**Figure 2**, **Appendix A**). At the time of this investigation, the land was occupied by multiple mixed commercial and residential buildings, with on-grade car parking areas.

The purpose of this DSI was to assess the contamination status of the site to assist in determining its suitability for the proposed redevelopment, ensure compliance with the State Environmental Planning Policy (Resilience and Hazards) 2021, and provide recommendations for the management of contaminated soil and/or groundwater, if identified.

1.2. Proposed Development

Based on the supplied plans **(Appendix F),** the proposed development involved the demolition of all existing structures, followed by the construction of a three-storey mixed use development (retail spaces and residential dwellings) overlying a two-level basement. The lowest basement level (level B2) is proposed to have a finished floor level (FFL) of RL 15.370m. To achieve the FFL, excavation depths from 6m to 10.5m below existing ground level (BEGL) have been estimated with locally deeper excavations assumed for footings, lift overrun pits, crane pads, and service trenches.

1.3. Regulatory Framework

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

Contaminated Land Management Act 1997;

- DEC (2007) Guidelines for the Assessment and Management of Groundwater Contamination;
- Environmental Planning and Assessment Act 1979;
- NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme – 3rd Edition;
- NSW EPA (2020) *Consultants Reporting on Contaminated Land*;
- NSW EPA (2022a) *Sampling Design Guidelines Part 1 – Application*;
- NSW EPA (2022b) Sampling Design Part 2 – Interpretation;
- NEPC (2013) Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater;
- NEPC (2013) Schedule B(2) Guideline on Site Characterisation;
- State Environment Protection Policy (Resilience and Hazards) (2021);
- *Warringah Local Environmental Plan 2011*; and
- *Warringah Development Control Plan 2011*.

1.4. Project Objectives

The primary objectives of this investigation were to:

- To provide a qualitative assessment of the environmental condition of the site, by appraising the potential for contamination on the basis of field observations, historical land uses and other documentary evidence;
- Assess the degree of soil and groundwater contamination (if present), by intrusive sampling and laboratory analysis for potential contaminants;
- Provide a conclusion regarding the suitability of the site for its proposed use; and
- Provide recommendations for the appropriate management of any impacted soils and/or groundwater, should site contamination be confirmed.

1.5. Scope of Works

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

1.5.1 Desktop Study

- Preparation of a Work, Health, Safety and Environment Plan (WHSEP);
- A review of relevant topographical, geological and soil landscape maps for the project area;
- Review of all previous reports;
- Search of historical aerial photographs from the NSW Spatial Portal to assess previous site use and land development in the neighbouring area;
- Review of readily available database information;
- Search through the NSW EPA contaminated land database to assess whether the site is notified or regulated under the Contaminated Land Management Act (1997); and
- Search through the NSW Government PFAS investigation program database for information on surrounding sites.

1.5.2 Fieldwork and Laboratory Analysis

- Review of existing underground services on-site, utilising Before-You-Dig plans and electro-magnetic equipment operated by a licensed locator;
- A detailed site walkover;
- Drilling of test boreholes at 4 locations across the site (EIBH1 up to EIBH4) within the accessible locations across the site;
- Multiple level soil sampling within fill and natural soils in each borehole;
- Conversion of one (1) BH into a groundwater monitoring well (EIBH2M);
- Completion of one GME, including measurement of standing water levels (SWLs) and representative sampling at the newly installed well and gauging groundwater monitoring wells around the sites perimeter offsite;
- Laboratory analysis of selected soil and water samples for relevant analytical parameters, as determined from the desktop study and field observations during the investigation program.

1.5.3 Data Analysis and Reporting

This DSI report was prepared in general accordance with NSW EPA (2020) and documents the desktop study findings, site observations made during the site inspection, data quality objectives, investigation methodologies, the factual field findings, a conceptual site model, the results of laboratory analyses, assessment of results and characterisation of the site, conclusions and recommendations.

2. SITE DESCRIPTION

2.1. Property Identification, Location and Physical Setting

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

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	10-28 Lawrence Street, Freshwater, NSW 2096
Location Description	Approximately 11.2km south of the Sydney CBD. Bound by: ▪ North: Lawrence Street, followed by commercial properties; ▪ East: Albert Street, followed by commercial and residential properties; ▪ South: Residential properties followed by Undercliff Road; ▪ West: Dowling Street, followed by commercial and residential properties.
Site Coordinates	Eastern corner of site (GDA2020-MGA56): ▪ Easting: 341107.035 ▪ Northing: 6261033.85 (Source: http://maps.six.nsw.gov.au)
Site Area	2,527m^2 (**Appendix F**) (Source: http://maps.six.nsw.gov.au)
Lot and Deposited Plan (DP)	Lot 1 of DP900061, Lot 1 of DP100563, Lot 1 of DP578401, Lot 45 of DP974653 and Lot 1 of DP595422
State Survey Marks	Two permanent and one state survey mark are situated within close proximity to the site: ▪ PM1983D: at the corner of Lawrence and Dowling Street (approximately 40m northwest); ▪ PM2226: at the corner of Albert Street and Moore Lane (approximately 80m northeast); ▪ SS9466: at the corner of Lawrence and Dowling Street (approximately 40m northwest). (Source: http://maps.six.nsw.gov.au)
Local Government Area	Northern Beaches Council
Current Zoning	E1 Local Centre (*Warringah Local Environmental Plan 2011)*

2.2. Regional Setting

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

Table 2-2 Regional Setting Information

Attribute	Description
Topography	The site generally slopes from west to east. Regional slope generally dips from the south west to the north east (**Appendix F**).
Site Drainage	Likely to be consistent with the general slope of the site. Stormwater is expected to be collected in stormwater pits and piped to the municipal collection system.
Regional Geology	The Department of Mineral Resources Sydney 1:100,000 Geological Series Sheet 9130 (DMR, 1983) indicates the site is underlain by Hawkesbury Sandstone (Rh), consisting of medium to coarse-grained quartz sandstone, very minor shale and laminate lenses.
Soil Landscapes	The Soil Conservation Service of NSW Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 1989) indicates that the site overlies a Gymea (gy) erosional soil landscape, characterised as undulating to rolling rises and low hills on Hawkesbury Sandstone. Local relief 20-80m, slopes 10-25%. (Source: https://www.environment.nsw.gov.au/eSpade2Webapp)
Acid Sulfate Soil Risk	With reference to the Sydney_Heads Acid Sulfate Soil Risk Map (1:25,000 scale; Murphy, 1997), the site lies within an area of 'No Known Occurrence'. In such cases, ASSs are not known or expected to occur and "land management activities are not likely to be affected by ASS materials." The site is not classified on the Warringah Local Environmental Plan 2011- Acid Sulfate Soil Map, further proof that the potential for ASS to be present on-site was low. Given the site high elevation (21-35 metres Australian Height Datum - mAHD), as well as the above map information, the potential for ASS presence on-site was considered to be low and further assessment was unwarranted.
Typical Soil Profile	Based on previous investigations of the area and EI's existing project database, the expected typical soil profile at the site is a shallow layer of anthropogenic filling mostly surrounding the previous building footprint, overlying residual sandy soils, followed by shallow sandstone bedrock and shale at depth.
Inferred Groundwater Flow Direction	Inferred to be easterly, towards Freshwater Beach.
Nearest Surface Water Feature	Manly Lagoon and Freshwater Beach are situated approximately 500m south and 800m east of the site.

2.3. Surrounding Land Use

The site is situated within the Northern Beaches Council LGA. The local sensitive receptors within close proximity to the site were also identified.

Table 2-3 Surrounding Land Uses

Direction	Land Use Description	Sensitive Receptors (approximate distance from site)
North	▪ Harbord Literary Institute ▪ Commercial and Residential Properties ▪ St Peters Uniting Church	▪ Visitors and staff (75m north west) ▪ Residents, Customers and Staff (35m north) ▪ Visitors (157m north)
East	▪ Commercial and Residential Properties	▪ Residents, Customers and Staff (immediately adjacent)
South	▪ Residential Properties	▪ Residents (immediately adjacent)
West	▪ The Learning Sanctuary Freshwater	▪ Students, Visitors and Staff (195m west)

2.4. Site Inspection

Site observations were recorded during a site walkover at the site on 31 March 2025 and findings were similar to the historical site walkover inspections (EI, 2024). These observations are summarised below and photographs taken during the inspection are presented in **Appendix C**.

- The site is located within a local centre area. Surrounding local businesses consist of retail shops, restaurants and office units.
- The sites surface was found to be generally flat, with a northerly slope on Dowling Street and an easterly slope on Lawrence Street (**Photograph 1**).
- The site was occupied by three two-storey brick buildings with metal roofs (west to east), and two single-storey brick buildings with concrete roofs. The single-storey building at the far eastern end of the site includes a rooftop parking area (**Photograph 2**).
- Commercial and residential uses were identified within the buildings. Commercial activities include a dry-cleaners business (28 Lawrence Street), retail shops, café and restaurants, and office units.
- A concrete-paved driveway was constructed along the back of the buildings, extending from Dowling Street to the rooftop parking area **(Photograph 3**).
- All surface pavements were in fair condition with minoring cracking (**photograph 4**). No oil staining was noted on the pavement area.
- Pedestrian stairway access to the arcade from the rooftop carpark was tiled in fair good condition with a waste disposal room attached with bins and an above ground grease trap (**photograph 5 & 6**)
- No olfactory indicators of contamination (i.e. no suspicious odour) were detected during the site inspection.

There were no evidences of underground storage tanks (USTs) or above ground storage tanks (ASTs) installed on the site.

3. SITE HISTORY AND SEARCHES

3.1. Previous Investigations

Geotechnique (2011b) *Preliminary Contamination Assessment; 10-28 Lawrence Street, Freshwater, NSW 2096*, Report No 12446/2-AA, dated 15 April 2011.

EI Australia (2023) *Detailed Site Investigation ; 10-28 Lawrence Street, Freshwater, NSW 2096,* Report No. E25874.E02_Rev0, dated 25 May 2023.

EI Australia (2024) *Preliminary Site Investigation 10-28 Lawrence Street, Freshwater, NSW 2096,* Report No E25784.E01_Rev1, dated 12 November 2024.

Table 3-1 Summary of the Previous Investigation

Project Task	Findings
Geotechnique (2011b) Preliminary Contamination Assessment	
Objectives	The objectives of this investigation were to assess whether the site potentially presented a risk of harm to human health and /or the environment, and to determine the suitability of the site for the proposed development.
Scope of Works	Desktop study, including review of historical aerial photographs, Department of Lands records, Section 149 (2&5) planning certificates, Council records, DECCW records, WorkCover (now SafeWork NSW) records, soils and geological maps, and Department of Natural Resources (DNR) groundwater bore information; and A site inspection.
Key findings	▪ The site comprised five consecutive brick buildings facing Lawrence Street to the north. ▪ During the site inspections in March & April 2011 and 2025, various service and retail shops occupied the front ground floors of all buildings. The front ground floor of property at No 22 Lawrence Street was a dry-cleaning shop. ▪ No chemical storage was noted within the site. There were no obvious features associated with any underground storage tanks that would indicate the potential for contamination. ▪ A search for WorkCover NSW (SafeWork NSW) records had not located any records pertaining to the site. ▪ A geotechnical investigation was conducted concurrently with this investigation. Subsurface conditions were described as a layer of filling (0.3-1.0 metres Below Ground Level (mBGL), overlying sandstone bedrock. Groundwater level was measured at approximately 2.0 mBGL from BH3.
Conclusions and Recommendations	▪ Based on the above information, it was considered the site was suitable for the proposed residential use, subject to the implementation of a detailed contamination assessment. If contamination was identified, delineation of the extent of contamination, preparation of a remedial action plan (RAP) and validation would be required. ▪ Classification of surplus soils due to the proposed basement car park excavation would be required prior to re-use at other sites, or disposal at an NSW EPA licensed landfill. A hazardous materials survey was recommended to be carried out by a qualified consultant / occupational hygienist, if the internal features / structures of the building were to be removed.
EI Australia (2023) Dewatering Management Plan (DMP)	
Objectives	The objectives of this DMP were to:

Project Task	Findings
	▪ Describe the dewatering methodology, groundwater treatment requirements, monitoring and reporting procedures to be employed during temporary dewatering activities; ▪ Provide effective management and contingency procedures, to ensure that the discharge of extracted groundwater does not pose unacceptable risks to receptors; and ▪ Assess the analytical results obtained for the groundwater samples collected to characterise baseline conditions within the existing groundwater monitoring wells.
Scope of Works	▪ In order to achieve the DMP objectives above, the following works were undertaken: ▪ A desktop study including: ▪ Review of the development proposal and proposed shoring/dewatering designs; ▪ Review of geological, landscape and acid sulphate soil (ASS) risk maps for the area; ▪ A search of government records for previously installed registered bores located within a 500m radius of the site; ▪ Review of previous environmental investigation reports to identify potential onsite and offsite sources of contamination that may impact on dewatering discharge water quality; and ▪ Review of relevant existing reports and laboratory analytical data obtained during previous groundwater monitoring events (GMEs) to determine groundwater quality prior to dewatering. ▪ Preparation of the DMP report.
Key findings	▪ Analytical results identified the following concentrations above the guidelines (ANZG, 2018): ‣ Dissolved metals (aluminium, copper and zinc); ‣ TRHs (F2 and F3); ‣ pH; and ‣ Turbidity
Conclusions and Recommendations	▪ A sump and pump system has been recommended as the preferred dewatering method to be implemented during the construction phase. ▪ Ongoing sample analysis must occur during the dewatering phase. ▪ Interim monitoring reports to be completed with a dewatering completion report at the closure of construction. **Note**: Along with the exceedances listed above, EI notes detections of tetrachloroethene and PAHs in monitoring well BH102M located down / cross gradient of the site.
EI Australia (2024) *Preliminary Site Investigation*	
Objectives	▪ To provide a qualitative assessment of the environmental conditions of the site, by appraising the potential for contamination on the basis of field observations, historical land uses and other anecdotal and documentary evidence; ▪ To make a conclusion about the suitability of the site for its proposed use; and ▪ To make recommendations for further investigation of the site, should the potential for contamination be confirmed.
Scope of Works	▪ Review of relevant (hydro)geological and soil landscape maps for the project area; ▪ A site walkover inspection; ▪ Review of previous investigation reports; ▪ Review of the site history, based on an environmental risk and planning report prepared by Lotsearch Pty Ltd (‘Lotsearch’), aerial photographs (dating back to 1943) and property files archived by Northern Beaches Council; ▪ Searches of public registers maintained by the New South Wales Environment Protection Authority (NSW EPA) for statutory notices and licensing agreements issued under the

Project Task	Findings
	Contaminated Land Management Act 1997 and *Protection of the Environment Operations Act 1997*; ▪ A search of the *List of NSW Contaminated Sites Notified to the EPA*; ▪ Presentation of a conceptual site model (CSM); and ▪ Data interpretation and reporting.
Key Findings	The key findings of this PSI are as follows: ▪ The site was used for residential purposes before the 1950s / 1960s, when commercial operations were developed at the site. The activities with possible environmental contaminations are related to a former dry-cleaning business on No. 22 Lawrence Street (during 1975-1986) and the current dry-cleaning business on No. 28 Lawrence Street. ▪ The site and surrounding lands within close proximity (≤250m radius) were 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*. ▪ No gross contaminations were detected during the site inspection. Fibre cement sheeting (FCS) formed parts of the building fabric, including the eaves, roofing and flooring. ▪ There were no evidences of underground storage tanks (USTs) or above ground storage tanks (ASTs) installed on the site. ▪ The sub-surface profile of the site comprises a sequence of concrete slab underlain by fill, consisting of silty and gravelly sand with crushed sandstone and bricks, then sandstone bedrock. The potential for acid sulfate soils to be present on the site was considered to be very low. ▪ The presence of a shallow (<2 metres below ground level) groundwater table was inferred. The local groundwater flow direction was anticipated to be easterly, towards Freshwater Beach. ▪ The conceptual site model established a potential for contamination to be present within the site area. Therefore, the risks to human and environmental receptors posed by the identified contaminant sources warrant further (detailed / field-based) investigations.
Conclusions and Recommendations	▪ No gross contaminations were detected during the site inspection. Fibre cement sheeting (FCS) formed parts of the building fabric, including the eaves, roofing and flooring. ▪ There were no evidences of underground storage tanks (USTs) or above ground storage tanks (ASTs) installed on the site. ▪ The sub-surface profile of the site comprises a sequence of concrete slab underlain by fill, consisting of silty and gravelly sand with crushed sandstone and bricks, then sandstone bedrock. The potential for acid sulfate soils to be present on the site was considered to be very low. ▪ The presence of a shallow (<2 metres below ground level) groundwater table was inferred. The local groundwater flow direction was anticipated to be easterly, towards Freshwater Beach. ▪ The conceptual site model established a potential for contamination to be present within the site area. Therefore, the risks to human and environmental receptors posed by the identified contaminant sources warrant further (detailed / field-based) investigations.

4. CONCEPTUAL SITE MODEL

In accordance with NEPC (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collection for the site, a conceptual site model (CSM) was developed assessing plausible pollutant linkages between potential contamination sources, migration pathways and receptors. The CSM provides a framework for identifying data gaps in the existing site characterisation and future site assessments. Potential contamination sources, exposure pathways and receptors that were considered relevant for this assessment are summarised along with a qualitative assessment of the potential risks posed by complete exposure pathways.

4.1. Summary of Site History

A review of the previous investigations (**Section 3.1**), the site was privately owned / occupied, potentially for residential and commercial purposes since 1940s. The surrounding areas remained a similar land use, and the areas were developed over the years leading to commercial developments to the north of the site.

4.2. Potential Contamination Sources

The potential contamination sources were as follows:

- Former and current on-site commercial activities (especially dry-cleaning businesses);
- Imported fill materials of unknown origin and quality;
- Weathering and demolition of former building fabrics containing hazardous substances (including bonded asbestos-containing materials (ACM), lead-based paints and metallic surfaces) and/or deposition of such in near-surface soils; ‘
- Leakage from vehicles and in storage/parking areas;
- Possible use of pesticides;
- Offsite migration from neighbouring properties;
- On-site commercial activities

4.3. Contaminants of Potential Concern (COPCs)

Based on the sources listed in **Section 4.2**, the COPCs for this site were considered to be:

- Priority metals (PM) - arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc;
- Volatile organic compounds (VOC), including:
- Total recoverable hydrocarbons (TRH);
- The monocyclic aromatic hydrocarbons benzene, toluene, ethylbenzene, xylenes (BTEX);
- Polycyclic aromatic hydrocarbons (PAH);
- Chlorinated hydrocarbons (CHC);
- Phenols;
- Organochlorine and organophosphorus pesticides (OCP / OPP);
- Polychlorinated biphenyls (PCB); and

- Asbestos.

4.4. Risk Assessment

An assessment of the potential contamination risks for the site is outlined in **Table 4-1**.

Table 4-1 Assessment of Potential Contamination Risks

Potential Source	Impacted Medium	COPC	Risk of Contamination
On-site commercial activities	Soil and groundwater	PM, TRH, CHC, BTEX, PAH, phenols	**Moderate** Site is currently and previously occupied by dry cleaners. Potential contamination is considered likely.
Importation of fill of unknown origin and quality	Soil	PM, TRH, BTEX, PAH, OCP, OPP, PCB, asbestos	**Moderate** Filling was identified on the site. Potential contamination is considered likely.
Hazardous building materials	Building fabrics Near surface soil	PM (lead), PCB, asbestos	**Moderate** Based on the age of the construction, hazardous building materials were likely to be present in the buildings.
Application of pesticides	Near surface soil (building footing areas)	PM (arsenic), OCP, OPP	**Low** If present, pesticides are expected to be limited to shallow, building footprint soils.
Leakage from vehicles	Near surface soil	PM, TRH, BTEX, PAH	**Low** The surface pavements were noted to be in fair condition, with minor cracks but no oil staining. Contamination (if present) likely to be restricted to shallow surface soil.
Migration from off-site sources	Soil and groundwater	PM, TRH, CHC, BTEX, PAH	**High** Local area has a long history of commercial use / activities. Historical Groundwater data of offsite monitoring wells in close proximity to the site boundary indicate exceedances in TRH (F1, F2, F3 & F4 fractions) and detections of Tetrachloroethene.

Risk values - L = Low, M = Medium, H = High

4.5. Potential Receptors

The following potential receptors of contamination from the site were identified as:

- Current and future site users;
- On-site demolition / construction workers (during future redevelopment);
- Users of the adjacent land during future demolition / construction works;
- Future site users, including intrusive (maintenance) workers; and
- Local groundwater and (ultimately) nearby Freshwater Beach.

4.6. Potential Pollutant Linkages

The conceptual site model (CSM) derived for the site and the potential pollutant linkages associated with the site are discussed in **Table 4-2**.

Table 4-2 Potential Pollutant Linkages

Potential Source	Impacted Media	Contaminants of Potential Concern	Transport Mechanism	Exposure Pathway	Potential Receptor
Historical and current on-site commercial activities Imported fill of unknown origin and quality Hazardous building materials Application of pesticides Leakage from vehicles Off-site migration	Soil	PM, TRH, CHC, BTEX, PAH, OCP, OPP, PCB, asbestos	Disturbance of surface and subsurface soils during site redevelopment, future site maintenance and future use of the site post redevelopment	Ingestion Dermal contact Inhalation of particulates	Current and future site occupier Demolition / construction workers Adjacent site users Future intrusive workers
			Atmospheric dispersion from soil to outdoor and indoor air spaces		
			Volatilisation of contamination from soil and diffusion to indoor air spaces.	Inhalation of vapours	
	Groundwater	PM, TRH, CHC, BTEX, PAH	Volatilisation of contamination from groundwater to indoor or outdoor air spaces (onsite and offsite)	Inhalation of vapours Ingestion Dermal contact	Current and future site occupier Demolition / construction workers Adjacent site users Future intrusive workers
			Migration of dissolved phase impacts in groundwater via diffusion and advection	Biota uptake	Freshwater Beach (approximately 500m downgradient)

4.7. Data Gaps and Uncertainties

The CSM derived for the site was used to qualitatively assess environmental risks and identify data gaps. Based on a review of the site history, the following data gaps required closure:

- Are there contaminants present within the site at levels which pose unacceptable risk(s) for the proposed development and local sensitive receptors?
- Are soil conditions at the site suitable for the proposed use?
  - These data gaps were partially addressed by this DSI, however due to access limitations during this assessment the soil sampling density is below the requirements of NSW EPA (2022) Sampling Design part 1 and discussed further in **Sections 8.4 and Section 10.**

5. METHODOLOGY

5.1. Sampling and Analysis Quality Plan (SAQP)

The SAQP ensures that the data collected as part of the environmental works carried out at the site are representative and provide a robust basis for site assessment decisions. This SAQP includes the following:

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

5.2. Data Quality Objectives (DQO)

In accordance with the USEPA (2006) *Data Quality Assessment* and the NSW EPA (2017): *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme*, the process of developing Data Quality Objectives (DQO) was used by the EI assessment team to determine the appropriate level of data quality needed for the specific data requirements of the project. The DQO process that was applied for this assessment is documented in **Table 5-1**.

Table 5-1 Summary of Project Data Quality Objectives

DQO Steps	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 located at 10-28 Lawrence Street, Freshwater, NSW was occupied and contained commercial and residential structures on site. The purpose of this assessment is to support the planning process by identifying any potential contamination on-site, in order to inform a Development Application (DA) to be submitted to Northern Beaches Council for the proposed redevelopment of the property. A review of the site history (summarised in **Section 3**) identified potential contamination that may be present in site soils and groundwater, contributed by various potential sources listed in **Section 4.2**, including potential contaminants summarised in **Section 4.3**. The proposed development plans for the site have been provided and it is understood that this investigation has been completed to assist with these plans. This investigation was required to characterise the condition of site soils and groundwater and enable the developer to meet their obligations under *State Environment Protection Policy (Resilience and Hazards) (2021)* and the *Contaminated Land Management Act 1997* (CLM Act), for the assessment and management of contaminated soil and/or groundwater.

DQO Steps	Details
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 need to be made are: ▪ Has the nature, extent and source of any soil and/or groundwater impacts on-site been defined? ▪ What impact do the site specific, geological and hydrogeological conditions have on the fate and transport of any impacts that may be identified? ▪ Does the level of impact coupled with the fate and transport of identified contaminants represent an unacceptable risk to identified human and/or environmental receptors on or offsite? ▪ Does the collected data provide sufficient information to allow the 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 include: ▪ Proposed residential end land use with ground floor retail facilities; ▪ Review of previous investigations at the site; ▪ National and NSW EPA guidelines made or approved under the *NSW Contaminated Land Management Act 1997*; ▪ National and NSW EPA guidelines published or endorsed in the absence of criteria; ▪ Soil and groundwater samples and observations obtained from intrusive investigation at locations and to depths deemed appropriate for investigative purposes (or prior refusal); ▪ Investigation sampling to verify the presence of contamination and to evaluate the potential risks to receptors; and ▪ Laboratory analysis of selected soil samples as per **Section 4.3.** At the end of the assessment, a decision must be made regarding whether the environmental conditions are suitable for the proposed redevelopment, or if additional investigations are required to confirm site suitability, or remedial works to make the site suitable for the proposed use.
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.	Lateral – The cadastral boundaries of the site; Vertical – From the existing ground surface to the deepest investigated soil depth (13.2 mBGL), including underlying fill and natural soil/bedrock horizons, while the deepest investigated groundwater depth (13.2 mBGL) for the water-bearing zones. Temporal – The results will be valid on the day samples are collected and will remain valid as long as no changes occur in regards to site use and contamination (if present) does not migrate onto the site from off-site sources.

DQO Steps	Details
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.	The decision rules for the investigation are: ▪ What are the characteristics of soil and groundwater at the site? ‣ Soil boreholes were advanced to natural, sampled and logged to characterise underlying conditions. ‣ Groundwater monitoring wells were previously installed to screen underlying water bearing zones; these will be sampled and logged to characterise underlying conditions. ▪ Is the site suitable for the proposed land use? ‣ If the concentrations of contaminants in the soil and groundwater data are below the relevant health-based and ecological criteria for the intended land use; then the site will be deemed suitable for the proposed development. ▪ Is additional information required to determine the suitability of the site for its proposed use? ‣ Should additional information be required as determined by the conceptual site model (CSM), then appropriate recommendations will be provided. ▪ Decision criteria for analytical data 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 are to be in accordance with the National and NSW EPA guidance and appropriate indicators of data quality and standard procedures for field sampling and handling. This should include the following points to quantify tolerable limits: ▪ The null hypothesis for the investigation is that the 95% Upper Confidence Limits (UCL) of the mean for contaminants of concern exceed relevant residential with minimal access to soil land use criteria across the site. ▪ The acceptance of the site will be based on the probability that: ‣ The 95% UCL of the mean of the data will satisfy the given site criteria. Therefore, a limit on the decision error will be 5% that a conclusive statement may be incorrect; ‣ The standard deviation of the results is less than 50% of the relevant remediation acceptance criterion; and ‣ No single results exceed the remediation acceptance criteria by 250% or more. ▪ Concentrations for chemicals of concern that are below investigation criteria made or approved by the NSW EPA will be treated as acceptable and indicative of suitability for the proposed land use(s). ▪ If contaminant concentrations in soil exceed the adopted criteria, further investigation will be considered prudent. If no contamination is detected, no further action is required.

DQO Steps	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.	In order to identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs: ▪ Four sampling locations were proposed for the site using a systematic sampling pattern across accessible areas of the site. ▪ Written instructions were issued to guide field personnel in the required fieldwork activities; ▪ Field screening for potential VOC presence was carried out with a portable Photo-Ionisation Detector (PID); ▪ The results were reviewed to determine if further excavation and additional sampling is warranted. Additional investigations would be considered to be warranted where soil concentrations are found to exceed remediation criteria endorsed by the NSW EPA, relevant to the proposed land use(s).

5.3. Data Quality Indicators

To ensure that the validation data were of an acceptable quality, they were assessed against the data quality indicators (DQI) outlined in **Table 5-2**, which related to both field and laboratory-based procedures. The overall assessment of data quality is discussed in **Section 6**.

Table 5-2 Data Quality Indicators

QA/QC Measures (PARC)	Data Quality Indicators
Precision – A quantitative measure of the variability (or reproducibility) of data	Data precision would be assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where: ▪ Results are less than 10 times the limits of reporting (LOR); ▪ Results are less than 20 times the LOR and the RPD is less than 50%; or ▪ Heterogeneous materials or volatile compounds are encountered.
Accuracy – A quantitative measure of the closeness of reported data to the “true” value	Data accuracy would be assessed through the analysis of: ▪ Method blanks, which are analysed for the analytes targeted in the primary samples; ▪ Matrix spike and matrix spike duplicate sample sets; 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 is representative of conditions encountered in the field, the laboratory would carry out the following: ▪ Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory artefacts; ▪ Review of relative percentage differences (RPD) values for field and laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and ▪ The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).

QA/QC Measures (PARC)	Data Quality Indicators
Completeness – A measure of the amount of useable data from a data collection activity	Analytical data sets acquired during the assessment will be evaluated as complete, upon confirmation that: ▪ Industry standard for sampling protocols were adhered to; and ▪ Copies of all COC documentation are presented, reviewed and found to be properly completed. It can therefore be considered whether the proportion of “useable data” generated in the data collection activities is sufficient for the purposes of the land use assessment.
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Given that a reported data set can comprise several data sets from separate sampling episodes, issues of comparability between data sets are reduced through adherence to standard procedures and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data will be collected by experienced samplers and NATA-accredited laboratory methodologies will be employed in all laboratory analytical programs.

5.4. Sampling Rationale

With reference to the CSM described in **Section 4**, and DQOs, the soil / groundwater sampling and analytical plans were in accordance with the following rationale:

- Multiple level (fill and natural) soil sampling at four test boreholes located across accessible areas of the site to characterise in-situ soils;
- In-field screening of soil headspace samples for VOCs, using a portable PID; and
- Installing one groundwater monitoring well adjacent to
- Completion of a GME, comprising the newly installed monitoring well, to characterise local groundwater conditions; andLaboratory analysis of representative soil and groundwater samples for the identified COPCs.

5.5. Assessment Criteria

For the purposes of this investigation, the adopted soil assessment criteria are referred to as the Soil Investigation Levels (SILs). These are presented alongside the analytical results in the corresponding summary tables, which are discussed in **Section 7**.

The assessment criteria proposed for this project are outlined in **Table 5-3** and **Table 5-5**. These were selected from available published guidelines that are made or approved by NSW EPA. Where criteria were not available, guidelines published or endorsed by NSW EPA were reviewed. The criteria were selected 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.

5.5.1 Soil Assessment

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

Table 5-3 Adopted Investigation Levels for Soil

Adopted Guidelines	Rationale
NEPC (2013)	**Soil Health-based Investigation Levels (HILs)**

Adopted Guidelines	Rationale
Soil HILs, HSLs, EILs. ESLs, Management Limits for TRH	NEPC (2013) *HIL-B* thresholds for residential sites with minimal soil access and *HIL-D* thresholds for industrial/commercial land use. **Soil Health-based Screening Levels (HSLs)** NEPC (2013) HSL-A & B thresholds were applied for vapour intrusion (per Section 2.4.8, Schedule B(1) NEPC (2013)) for residential properties assuming sand soil-type adopted for conservatism. *HSL-D* thresholds for industrial/commercial land use (for vapour intrusion of residual hydrocarbons) applicable for residential overlying basement footprint per Section 2.4.8 of NEPC (2013) Schedule B1. **For asbestos in soil:** No visible asbestos on the ground surface, for all parts of the site. Asbestos not detect at laboratory limit of reporting (LOR) of 0.01 %w/w **Ecological Investigation Levels (EILs) / Ecological Screening Levels (ESLs)** Soil will be assessed against the NEPC (2013) EILs/ESLs for urban residential land use scenarios. Ecological criteria has been adopted to assess the potential impact to potential proposed landscaping areas where plants could be exposed to soils and where precipitation may result in subsurface infiltration and resulting leaching of contaminants. EILs were derived from Ecological Investigation Level Calculation Spreadsheet developed by CSIRO for the National Environment Protection Council for a high traffic NSW suburb and NEPC (2013) Schedule B1 Guideline on Investigation Levels for Soil by the addition of site specific Added Contaminant Limit (ACL) and the Ambient Background Concentration (ABC) for a high traffic NSW suburb. The adopted ESL criteria were based on coarse grained criteria, as a conservative approach. **Management Limits for Petroleum Hydrocarbons** Should the HSLs be exceeded for petroleum hydrocarbons, soil samples would also assessed against the NEPC (2013) Management Limits for the TRH fractions F1 – F4 to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards & adverse effects on buried infrastructure.

5.5.2 Groundwater Assessment

Table 5-4 Adopted Investigation Levels for Groundwater

Adopted Guidelines	Rationale
ANZG 2018, GILs for Marine Waters; NEPC, 2013 Groundwater HSLs NHMRC (2018)	**Ecological: Groundwater Investigation Levels (GILs) for Marine 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 metals *cadmium and mercury*. **Health-based Screening Levels (HSLs)** The NEPC (2013) groundwater HSLs for vapour intrusion was used to assess potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts. The *HSL-A* thresholds for low-high density residential and *HLS-D* thresholds for commercial and industrial settings were applied. **Recreational: National Health and Medical Research Council (NHMRC)** Recreational Water criteria. Australian Drinking Water Guideline x 10 and the Aesthetic based drinking quality guideline.

5.6. Soil Investigation Methodology

The soil sampling works conducted at the site are described in **Table 5-5**. Sampling locations are illustrated in **Figure 2, Appendix A**.

Table 5-5 Summary of Soil Investigation Methodology

Activity/Item	Details
Fieldwork	An intrusive investigation for soil sampling and analysis was conducted on the 27th and 31st March 2025, with 4 boreholes being drilled across the site.
Drilling Method & Investigation Depth	▪ One borehole (EIBH2) was drilled using a hand auger to 0.7 mBGL the continued using a tight access portable rig to core through bedrock. ▪ Three of the test boreholes (EIBH1, EIBH3 & EIBH4) were drilled using a hand auger. Borehole details are presented in the detailed logs attached in **Appendix D**.
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 Australian Standard (AS) 1726:2017. Soil logs are presented in **Appendix D.**
Soil Sampling	▪ Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars. ▪ Blind field duplicates 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 (presence/absence).
Decontamination Procedures	Nitrile sampling gloves were replaced between each sampling location. Sampling equipment (i.e. auger) was scrubbed and washed with a mixture of Decon 90 and potable water (1/20) until free of all residual materials, then rinsed with laboratory-supplied, purified water.
Sample Preservation	Samples were stored in chilled (ice -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.
Quality Control & Laboratory Analysis	A number of soil samples were submitted for analysis by SGS Australia (SGS). QA/QC analysis comprised intra-laboratory duplicates ('field duplicates') analysed blindly by SGS and an inter-laboratory field duplicate analysed blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes, as discussed in **Section 6**.
Soil Vapour Screening	PID screening for the potential presence of VOCs within soil samples was completed during the intrusive investigations. No hydrocarbon odours were detected during the investigation.

5.7. Groundwater Investigation

The groundwater investigation methodology is described in **Table 5-6** . Sampling locations are illustrated in **Figure 2**, **Appendix A.**

Table 5-6 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	One groundwater monitoring well (EIBH2M) was installed on 27 March 2025. All wells were subsequently developed to remove any water and/or seepage following drilling. A single GME, involving water level gauging, well purging, physiochemical parameter readings and groundwater sampling, was completed on 9 April 2025. Additionally, two offsite Groundwater Monitoring wells were surveyed to assess standing water levels surrounding the site on 9 April 2025 (BH101M and BH103M).
Well Construction	Well construction was in general accordance with the standards described in NUDLC 2020, and involved the following: ▪ Ø 50 mm, Class 18 uPVC, threaded, machine-slotted screen and casing, with slotted intervals in shallow wells set to screen above the standing water level to allow sampling of phase-separated hydrocarbon product, if present; ▪ Base and top of each well was sealed with a uPVC cap; ▪ Annular, graded sand filter was used to approximately 1.0 m above top of screen interval; ▪ Granular bentonite was applied above annular filter to seal the screened interval; ▪ A bentonite/cement grout was used to fill the bore annulus to just below ground level; and ▪ Surface completion was comprised of steel gatic cover at surface.
Well Development	Well development was conducted by EI staff four days after installation. The development process involved the removal of water and accumulated sediment within the full length of the water column using a dedicated, high density polyethylene (HDPE), disposable bailer. Bailing was continued until no further reduction in suspended sediment was observed (i.e. after removal of several well volumes of water).
Well Gauging	Monitoring wells were gauged for SWL prior to well purging at the commencement of the GME on 9 April 2025. Gauging was conducted with a water/oil interface probe.
Well Purging & Field Sampling	Groundwater sampling was conducted using a low-flow peristaltic pump with HDPE tubing. Field measurement of water quality parameters was conducted on purged groundwater with a water quality meter (Hanna Multi Parameter HI 9894) positioned within an open flow-through cell. Groundwater parameters tested in the field were Dissolved Oxygen (DO), Electrical Conductivity (EC), Redox, Temperature and pH. Once three consecutive field measurements were recorded for purged water to within ± 10% for DO, ± 3% for EC , ± 0.2 units for pH, ± 0.2° for temperature and ± 20 mV for ORP, this was considered to indicate that representative groundwater quality had been achieved and final physio-chemical measurements were recorded The measured parameters and volume purged were recorded onto a field data sheet along with the purged water volume at the time of measurement. Total water and stabilised groundwater parameters are summarised in **Appendix E.**
Decontamination Procedure	The interface probe and water quality meter probe were all washed with Decon 90 and rinsed with deionised water (lab supplied) prior to use. All sample containers were supplied by the laboratory for the particular project and only opened once immediately prior to sampling.
Sample Containers and Preservation	Sample containers were supplied by the laboratory with the following preservatives: ▪ One, 500ml amber glass, acid-washed and solvent-rinsed bottle; ▪ One, 500ml HDPE bottle;

Activity/Item	Details
	▪ Two, 40ml glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; ▪ One, 150mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL); and ▪ Samples for metals analysis were field-filtered using 0.45 µm pore-size filters. All containers were filled with sample to the brim then capped and stored in insulated chests (containing ice bricks), until completion of the fieldwork and during sample transit to the laboratory.
Sample Transport	After sampling, the ice brick filled chests were transported to SGS using strict COC procedures. SRA was provided by the laboratory to document sample condition upon receipt. Copies of the SRA and COC certificates are presented in **Appendix G**. A split (inter-laboratory) field duplicate was submitted to Envirolab under strict COC procedures. Signed COC certificates and sample receipt documentation were provided by Envirolab for contamination purposes (**Appendix G**).
Laboratory Analysis and Quality Control	Groundwater samples were analysed by SGS and Envirolab for the COPCs. All samples were analysed within the required holding period, as documented in the corresponding laboratory reports (**Appendix H**). In addition to the split (inter-laboratory) field duplicate (analysed by Envirolab), QC testing comprised a blind (intra-laboratory) field duplicate, an equipment rinsate blank, a laboratory-prepared, trip spike water sample and a laboratory-prepared, trip blank water sample, all tested by SGS.

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 USEPA (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**
Fieldwork	Suitable documentation of fieldwork observations including borehole logs, field notes.	Yes	See **Appendix E**
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 G**
	Use of approved and appropriate sampling methods (soil, groundwater)	Yes	See **Section 5.6** and **5.7.**
	Selection of soil samples according to field PID readings (where VOCs are present)	Yes	See **Section 7**
	Preservation and storage of samples upon collection and during transport to the laboratory	Yes	See **Section 5.6** and **5.7.**
	Appropriate Rinsate, Field and Trip Blanks taken	Yes	See **Appendix G and Appendix I**
	Completed field and analytical laboratory sample COC procedures and documentation	Yes	See **Appendix G** and **Appendix I**
Laboratory	Sample holding times within acceptable limits	Yes	See **Appendix H** and **Appendix I**
	Use of appropriate analytical procedures and NATA-accredited laboratories	Yes	See **Appendix H** and **Appendix I**
	LOR/PQL low enough to meet adopted criteria	Yes	See **Appendix H** and **Appendix I**
	Laboratory blanks	Yes	See **Appendix H** and **Appendix I**
	Laboratory duplicates	Yes	See **Appendix H** and

Data Quality	Control	Conformance [Yes, Part, No]	Report Sections
			Appendix I
	Matrix spike/matrix spike duplicates (MS/MSDs)	Yes	See **Appendix H** and **Appendix I**
	Surrogates (or System Monitoring Compounds)	Yes	See **Appendix H** and **Appendix I**
	Analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD)	Yes	See **Appendix H** and **Appendix I**
	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 H** and **Appendix I**
Reporting	Report reviewed by a senior environmental consultant 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 the 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. Soil Investigation Results

7.1.1 Sub-surface Conditions

Based on the borehole logs (and excluding any inaccessible area), the sub-surface of the site was generalised as a layer of a fill layer of silty sands, overlying natural sandstone bedrock followed by shale.

More details encountered during the soil investigation by EI are provided in **Table 7-1**, and borehole logs are presented in **Appendix D**.

Table 7-1 Generalised Sub-surface Profile

Layer	Description	Minimum / maximum Depth (mBGL)
Fill	Silty SAND, medium to coarse grained, dark grey/brown with gravels (sub-angular to angular)	0.0 / 0.78
Bedrock	SANDSTONE, medium to coarse grained, pale grey, low to medium strength with quartz gravels- sub angular to angular.	0.78 / 10.9
Bedrock	SHALE, dark grey, medium to high strength.	10.9 / 13.28

‘+’ Denotes the material was described at the termination depth.

7.1.2 Field Observations

Soil samples were obtained from bores at various depths ranging between 0.1 and 2.1 mBGL. All examined soil samples were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, asbestos fragments, ash and charcoal) and the following observations were noted (Photographs are presented in **Appendix C**):

- A sweet odour was noted within the sandstone at EIBH2M. A sulphurous like odour was also noted clay pockets interbedded within the sandstone (minor inclusions). No other odours were recorded in the soil profiles at the remaining borehole locations;
- No fragments of potential ACM was observed in the soil profiles at the borehole locations;
- Inclusions of ash and charcoal were observed in the examined fill soils of EIBH3;
- VOC concentrations in soil headspace samples were screened in-field using a portable PID. All VOC readings were low (<1 parts per million (ppm).

7.2. Groundwater Investigation Results

7.2.1 Monitoring well construction

Table 7-2 Monitoring Well Constructions Details

Well	Well Depth (mBGL)	RL[1,2] (mAHD)	Screen Interval (mBGL)	Groundwater Seepage (mBGL)	Lithology Screened
EIBH2M	13.28	26.25	7.28 - 13.28	-	Sandstone

Footnote:

1 The reduced level (RL) corresponds to the ground surface at the well location (mAHD).

2 RL has been extrapolated from the survey plan; No. 10-28 Lawrence Street, Freshwater. Norton Survey Partners, Ref: 53094, dated November, 2022.

7.2.2 Field Observations

A GME was conducted on 9 April 2025. Field data were recorded before sampling, as presented in **Table 7-3**. Details of the portable water quality meters used, including copies of field data sheets are provided in **Appendix E.** Samples were also evaluated on a qualitative basis for odour and visual signs of contamination and the following observations were noted:

- No suspicious odours were detected in the monitoring well;
- No sheen was observed on the sampled groundwater; and
- Groundwater within monitoring well EIBH2M was noted to be low turbid, with no colouring occurring.

Table 7-3 Groundwater Field Data

Well	SWL (mBTOC[1])	SWL[2] (mAHD)	DO (mg/L)	pH	EC (µS/cm)	T (°C)	Redox[3] (mV)
EIBH2M	2.47	23.78	0.0	4.6* (lab. tested)	299	21.24	71.4

Footnote:

1 mBTOC denotes meters below top of well casing

2 SWL (in mAHD) calculated by subtracting the SWL in m BGL from the RL of the ground surface at the well location, SWL (in mAHD) = RL (in mAHD) – SWL (in mBGL)

3Redox readings were adjusted to the Standard Hydrogen Electrode by adding 205mV to the field electrode potential

*pH was measured at the laboratory due to sensor malfunction during the fieldworks.

The collected field quality parameters (**Table 7-1**) indicated that groundwater is acidic (pH 4.6), fresh (EC 299 µS/cm) and oxidising (Redox 71.4 mV).

The SWL data was extrapolated to reduced levels in mAHD from the survey plan (Norton Survey Partners, 2022), which enabled groundwater level contour analysis using the Surfer® software. Offsite groundwater monitoring wells along the site perimeter (BH101M - BH103M) were gauged to assist with the indicative groundwater contours (**Figure 3, Appendix A**). The analysis indicated that groundwater flow direction can be inferred to be easterly, towards Freshwater Beach.

7.3. Laboratory Analytical Results

7.3.1 Soil Analytical Results

A summary of laboratory results showing sample quantities, minimum / maximum analyte concentrations and samples found to exceed the SILs, is presented in **Table 7-3.** More detailed tabulations of results showing the concentrations for individual samples alongside the adopted soil criteria are presented in **Appendix B, Table B.1** at the end of this report.

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

Table 7-4 Summary of Soil Analytical Results

No. of primary samples	Analyte	Min Conc. (mg/kg)	Max Conc. (mg/kg)	Samples exceeding investigation levels
Metals				
6	Arsenic	<1	12	None
6	Cadmium	<0.3	2.9	None
6	Chromium (Total)	0.6	19	None
6	Copper	<0.5	110	None
6	Lead	3.0	1,400	EIBH3_0.3-0.4
6	Mercury	<0.05	0.3	None
6	Nickel	<0.5	6.4	None
6	Zinc	<2	1,700	EIBH3_0.3-0.4
PAHs				
6	Naphthalene	<0.1	<0.1	None
6	Benzo(a)pyrene	<0.1	0.6	None
6	Carcinogenic PAHs (as B(a)P TEQ)	<0.3	0.8	None
6	Total PAH	<0.8	4.1	None
BTEX				
6	Benzene	<0.1	<0.1	None
6	Toluene	<0.1	<0.1	None
6	Ethyl benzene	<0.1	<0.1	None
6	Xylenes (Total)	<0.3	<0.3	None
TRHs				
6	F1 ^{1}	<25	<25	None
6	F2 ^{2}	<25	<25	None
6	F3 ^{3}	<90	<90	None
6	F4 ^{4}	<120	<120	None
Pesticides				
4	OCPs	<0.1	2.8	None
4	OPPs	<1.7	<1.7	None
PCBs				
4	Total PCBs	<0.1	<0.1	None
Asbestos				
4	Asbestos	Not detected	Not detected	None (soil)

F1 is obtained by subtracting the sum of BTEX concentrations from the C_6-C_{10} fraction.
F2 is obtained by subtracting naphthalene from the >C_{10}-C_{16} fraction.
F3 – (C_{16}-C_{34}).
F4 – (C_{34}-C_{40}).

7.3.2 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 7-4.** More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted groundwater criteria are presented in **Appendix B**, **Table B.2**.

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				
1	Aluminium	1,100	1,100	GWBH2M-1
1	Arsenic	1	1	None
1	Cadmium	<0.1	<0.1	None
1	Chromium (Total)	4	4	None
1	Copper	36	36	GWBH2M-1
1	Lead	3	3	None
1	Mercury	<0.1	<0.1	None
1	Nickel	3	3	None
	Zinc	<5	9	GWBH2M
PAHs				
1	Naphthalene	<0.1	<0.1	None
1	Benzo(a)pyrene	<0.1	<0.1	None
1	Total PAH	<1	<1	None
BTEX				
1	Benzene	<0.5	<0.5	None
1	Toluene	<0.5	<0.5	None
1	Ethylbenzene	<0.5	<0.5	None
1	o-xylene	<0.5	<0.5	None
1	m/p-xylene	<1	<1	None
TRHs				
1	F1 [1]	<50	<50	None
1	F2 [2]	<60	<60	None
1	F3 [3]	<500	<500	None
1	F4 [4]	<500	<500	None
Phenols				
1	Total Phenols	<0.05	<0.05	None
VOCs				
1	Tetrachloroethene (Perchloroethylene, PCE)	<0.5	<0.5	None
1	Total VOCs	<10	<10	None

[1] To obtain F1, subtract the sum of BTEX concentrations from the C_6-C_{10} fraction.
[2] To obtain F2, subtract Naphthalene from the >C_{10}-C_{16} fraction.
[3] F3 – (C_{16}-C_{34}).
[4] F4 – (C_{34}-C_{40}).

8. SITE CHARACTERISATION

8.1. Subsurface conditions

Based on the borehole logs (**Appendix F**), and excluding any inaccessible areas, the sub-surface of the site was generalised as a layer surface pavement overlying of silty Sand filling (up to 0.78m thickness), then natural sandstone bedrock occurring from 0.78 mBGL onwards.

8.2. Soil Impacts

Based on the soil sample data summarised in **Tables 7-3** and **Table B.1, Appendix B**, no contaminants of concern (priority metals, VOCs, BTEX compounds, PAHs, OCPs, OPPs and PCBs) were reported at concentrations above adopted health-based criteria, except for the following:

- Lead in EIBH3_0.3-0.4 (1,400 mg/kg), marginally exceeding both the human-health (HIL-B) and ecological (EIL-B) thresholds (1,200 and 1,100 mg/kg, respectively); and
- Zinc in EIBH3_0.3-0.4 (1,700 mg/kg), exceeds the ecological (EIL-B) threshold (360 mg/kg).

Asbestos was not detected (at a reporting limit of 0.01 %w/w) in all fill samples collected from each of the investigation locations.

EIBH3 was located within the driveway, near the southern site boundary (**Figure 3**, **Appendix A**). Under the proposed development (**Section 1.2** and **Appendix F**), excavation of site soils will be conducted, in order to perform the cut (platform). Hence, the most likely remediation strategy is off-site disposal of contaminated soils to EPA-licensed landfill facilities. The waste classification process will require representative soil sampling and analysis of the COPCs listed in **Section 3.3.4**, in accordance with the EPA (2014) *Waste Classification Guidelines*, for which the data from this and additional investigations can be utilised.

8.3. Groundwater Impacts

Most of the contaminant concentrations reported to be below the adopted human health and ecological criteria with the exception of:

- Aluminium (1,100 µg/L) was detected above the adopted criteria applicable the Recreational Water Guidelines (200 µg/L);
- Cu and Zn (30 µg/L) were detected above the adopted criteria above the adopted criteria applicable for marine waters (Cu: 1.3 µg/L & Zn: 15 µg/L).

Heavy metals are ubiquitous in urban-industrial environments. Potential sources of heavy metals in subsurface groundwater include piping, fencing material and historical industrial activities. There is no evidence that the site soil is contributing to the metal concentrations reported in the groundwater as COPC concentrations in the natural soil layer (above the well screen) are within the acceptance criteria. EI therefore considers the metals exceedances are attributed to natural background concentrations for a highly urbanised environment and the risk from priority metals in groundwater is low and acceptable.

Results are summarised in **Tables 7-4** and **Appendix B, Table B.2**. Locations of samples are presented as **Figure 2, Appendix A**.

Historical groundwater investigations adjacent to the site boundary offsite (**Section 3.1**) identified TRH (fractions F2 and F3) above the acceptance criteria at monitoring wells BH101M up to BH103M (down / cross gradient of the site). Detections of tetrachloroethene and PAHs were also noted at the cross gradient monitoring well BH102M. Due to the proximity of the wells to the sites boundary EI considers the groundwater quality remains as a data gap requiring further assessment following demolition of the existing structures to allow access to the entirety of the proposed development footprint.

8.4. 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 on-site and off-site receptors.

Due to access constraints, soil investigation was limited to four locations, and samples were recovered by auger drilling, due to access restrictions at the site. Groundwater investigation was limited to sampling from one monitoring well and triangulation was only possible with offsite wells. Identified data gaps require closure after demolition of the current structures in order to more fully demonstrate suitability of the site for the proposed development. The data gaps are:

- The condition of soil within the footprint of the current buildings and/or structures;
    - The existing building was occupied at the time of site investigation and intrusive sampling was not undertaken.
    - Increase soil sampling density to satisfy requirements of NSW EPA (2022) Sampling Design part 1.
- Further groundwater characterisation after demolition:
    - Further assess groundwater quality conditions with the installation of two new groundwater wells (total of at least three monitoring wells), so that a more comprehensive groundwater monitoring campaign can be conducted within the redevelopment area.

9. CONCLUSIONS

The site located at 10-28 Lawrence Street, Freshwater, NSW 2096 was the subject of a Preliminary Site Investigation with limited sampling, conducted to assess the nature and degree of on-site contamination associated with current and former uses of the property. The key findings of the investigation were as follows:

- The site was occupied by three two-storey brick buildings with metal roofs (west to east), and two single-storey brick buildings with concrete roofs. The single-storey building at the far eastern end of the site includes a rooftop parking area.
- The site was currently occupied by multiple commercial businesses inclusive of a dry-cleaners business (28 Lawrence Street), retail shops, café and restaurants, and office units.
- There were no evidences of underground storage tanks (USTs) or above ground storage tanks (ASTs) installed on the site.
- The subsurface profile consisted of surface pavement overlying fill (silty sand up to 0.78m thickness), then natural sandstone bedrock. Standing water level was measured at approx. 23.78m AHD. Groundwater found to be acidic (pH 4.6), fresh (EC 299 µS/cm) and oxidising (Redox 71.4 mV) and inferred to be flowing easterly, towards Freshwater Beach.
- No visual evidence of asbestos fragments were found across the site during intrusive works or site walkover, however ash and slag was identified in the upper fill layer of soil at EIBH3.
- A sweet odour was noted within the sandstone at EIBH2M. A sulphurous like odour was also noted clay pockets interbedded within the sandstone (minor inclusions). No notable or suspicious odours were recorded in the soil profiles at the remaining borehole locations.
- No contaminants of concern (primary metals, VOCs, BTEX compounds, PAHs, OCPs, OPPs and PCBs) were reported in soil at concentrations above adopted health-based or ecological criteria, except for the following:
  - Lead in EIBH3_0.3-0.4 (1,400 mg/kg), marginally exceeding both the human-health and ecological thresholds (1,200 and 1,100 mg/kg, respectively); and
  - Zinc in EIBH3_0.3-0.4 (1,700 mg/kg), exceeds the ecological threshold (360 mg/kg).
- Asbestos was not detected (at a reporting limit of 0.01 %w/w) in samples of fill recovered from each of the eight investigation locations.
- Contaminant concentrations in groundwater were reported below the adopted criteria, with the exception of the following:
  - Copper and Zinc were reported in groundwater at a concentration that marginally exceeded adopted criterion for marine water levels; and
  - Aluminium was reported at a concentration that exceeded adopted criterion for recreational water levels however the risk from priority metals in groundwater was low and acceptable.
- Historical offsite groundwater investigations in proximity to the site boundary (**Section 3.1**) identified TRH (fractions F2 and F3) above the acceptance criteria at monitoring wells BH101M up to BH103M (down / cross gradient of the site) along with detections of tetrachloroethene and PAHs cross gradient.
- Data gaps were identified in the current conceptual site model and those will require closure after demolition:
  - The condition of soil within the footprint of the current buildings and/or structures to satisfy requirements of NSW EPA (2022) Sampling Design part 1.

- Further assess groundwater quality conditions with the installation of two new groundwater wells (total of at least three monitoring wells), so that a more comprehensive groundwater monitoring campaign can be conducted within the redevelopment area.

Based on the findings of this DSI, and in accordance with EI's *Statement of* Limitations (**Section 11**), EI considers that the site can be made suitable for the proposed site development, subject to the implementation of the recommendations listed in **Section 10**.

10. RECOMMENDATIONS

EI considers that the site can be made suitable for the continued site use or proposed redevelopment, subject to the implementation of the following recommendations:

- Before commencement of demolition works, a Hazardous Materials Survey (HMS) shall be completed by a suitably qualified consultant, such as a SafeWork NSW Licensed Asbestos Assessor to identify any hazardous materials present within the existing building fabrics.
  - The HMS should guide subsequent building and infrastructure demolition at the site, to prevent release of hazards materials.
- Following demolition a data gap closure investigation which be undertaken to further characterise soil and groundwater as follows:
  - Determine the condition of soil and impacts from potential contaminants within the footprints of the existing buildings;
  - Increase soil sampling location density to satisfy requirements of *NSW EPA (2020) Sampling Design Guidelines*;
  - Soil sampling from test pits to increase characterisation of soil, particularly for the presence of asbestos in fill;
  - Install at least two new groundwater monitoring wells to complement the existing one (total of at least three monitoring wells) to enable triangulation and determine groundwater flow direction (potentiometric slope);
  - Undertake an additional groundwater monitoring event so that a more comprehensive groundwater quality monitoring campaign can be conducted within the redevelopment area.
- A waste management plan should be prepared, to classify of waste material 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;
- Any material being imported to the site should be validated as suitable for the intended use in accordance with NSW EPA (2014) guidelines.
- An unexpected finds protocol following site demolition and during site excavation to ensure any potential contamination sources (such as soil staining and odour, buried asbestos or underground storage tanks) are identified and managed in accordance with NSW EPA legislation and guidelines;

EI emphasise that these recommendations can be managed through the development application process, in accordance with State Environmental Planning Policy (Resilience and Hazards) 2021.

11. STATEMENT OF LIMITATIONS

This report has been prepared for the exclusive use of Lawrence Street Pty Ltd, 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 Lawrence Street Pty Ltd.

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 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 analysis 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 Lawrence Street Pty Ltd 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.

REFERENCES

ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia, August 2018.

Chapman GA and Murphy CL (1989) *Soil Landscapes of the Sydney 1:100,000 Sheet 9130*, Department of Conservation and Land Management, Sydney.

CHROFI (2024) Architectural Concept DRAFT: *Freshie Mixed-Use Development*, prepared by CHROFI, 29 October 2024.

DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination*, New South Wales Department of Environment and Conservation, DEC 2007/144, June 2007.

DMR (1983) Sydney 1:100,000 Geological Series Sheet 9130 (Edition 1) Geological Survey of New South Wales, Department of Mineral Resources.

DPIE (2022). eSPADE v2.2 Portal, NSW Department of Planning, Industry and Environment, Retrieved from www.espade.environment.nsw.gov.au

EI Australia (2023) Dewatering Management Plan; 10-28 Lawrence Street, Freshwater, NSW 2096, Report No. E25874.E02_Rev0, dated 25 May 2023.

EI Australia (2024) Preliminary Site Investigation 10-28 Lawrence Street, Freshwater, NSW 2096, Report No E25784.E01_Rev1, dated 12 November 2024.

EnRisk (2016) *Proposed Decision Tree for Prioritising Sites Potentially Contaminated with PFASs,* Environmental Risk Services Pty Ltd, Environment Protection Authority of New South Wales, 25 February 2016.

Fitzpatrick, Powell, Bernie, Marvanek and Steve (2011) *Atlas of Australian Acid Sulphate Soils* (Version 2), Published by CSIRO, Data Collection.

Geotechnique (2011b) Preliminary Contamination Assessment; 10-28 Lawrence Street, Freshwater, NSW 2096, Report No 12446/2-AA, dated 15 April 2011.

Geotechnique (2011) Geotechnical Investigation; 12-32 Lawrence Street, Freshwater NSW (Geotechnique Pty Ltd Reference 12446/1-AA, dated 31 March 2011).

HEPA (2020) *PFAS National Environmental Management Plan*, National Chemicals Working Group of the Heads of the EPAs Australia and New Zealand (HEPA), January 2020.

Murphy CL (1997) Acid Sulfate Soil Risk Map (Second Edition), Department of Land and Water Conservation, Sydney, Supplied by the Sydney South Coast, Geographical Information Systems Unit.

Naylor SD, Chapman GA, Atkinson G, Murphy CL, Tulau MJ, Flewin TC, Milford HB and Morand DT (1998) Guidelines for the Use of Acid Sulfate Soil Risk Maps, Department of Land and Water Conservation, Sydney, Second Edition.

NEPC (2013). Schedule B1 Guideline on Investigation Levels for Soil and Groundwater, Schedule B2 Guideline on Site Characterisation and Schedule B4 Guideline on site-specific health risk assessments, National Environmental Protection (Assessment of Site Contamination) Measure 1999, National Environmental Protection Council, December 1999, Amendment 2013.

Northern Beaches Council (2011) *Warringah Local Environmental Plan (LEP)*

Northern Beaches Council (2011) *Warringah Development Control Plan (DCP)*

NSW (2021) State Environmental Planning Policy (Resilience and Hazards) (2021), last modified 2 March 2022.

NSW EPA (2022a) Sampling Design Part 1 - Application, Contaminated Land Guidelines, Environment Protection Authority of New South Wales, EPA 2022P3915, August 2022.

NSW EPA (2022b) Sampling Design Part 2 - Interpretation: Contaminated Land Guidelines, Environment Protection Authority of New South Wales, EPA 2022P3916, August 2022..

NSW EPA (2017). Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme, 3rd Edn. EPAP0269, October 2017.

NSW EPA (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines, NSW EPA, April 2020.

NSW Legislation (1997) Contaminated Land Management Act 1997

NUDLC (2012) Minimum Construction Requirements for Water Bores in Australia (3rd Edition), National Uniform Drillers Licensing Committee 2011, February 2012.

Water NSW https://realtimedata.waternsw.com.au/water.stm).

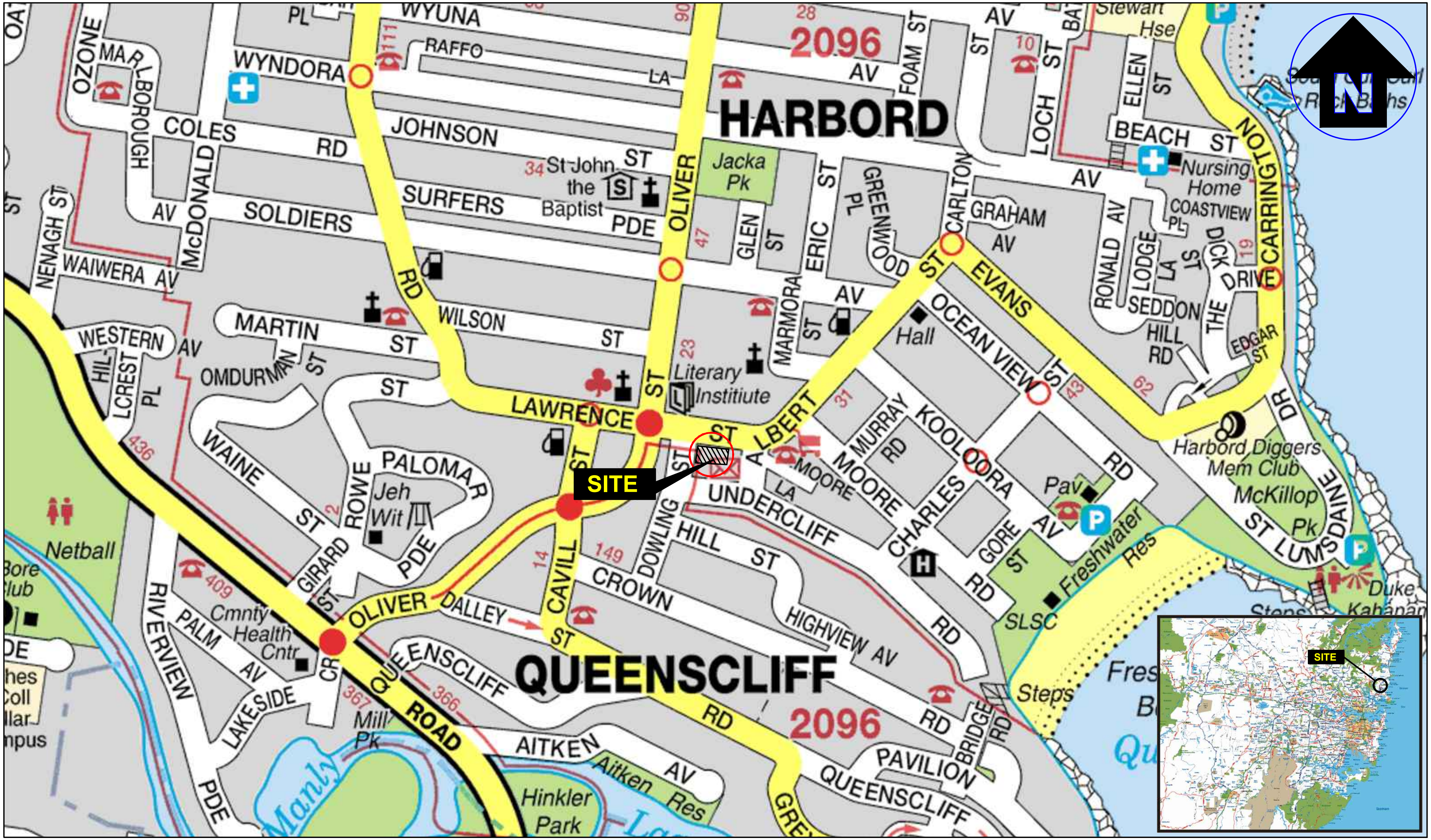
WADOH (2009) *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia,* Published by the Western Australian Department of Health, 2009.

ABBREVIATIONS

ABC	Ambient Background Concentration
ACL	Added Contaminant Limit
ACM	Asbestos-containing materials
AMP	Asbestos management plan
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
AS	Australian Standard
ASS	Acid sulfate soils
B(a)P	Benzo(a)Pyrene (a PAH compound), - B(a)P TEQ Toxicity Equivalent Quotient
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CEC	Cation Exchange Capacity
CLM	Contaminated Land Management
CSM	Conceptual Site Model
COC	Chain of Custody
DA	Development Application
DBYD	Dial before you dig
DEC	Department of Environment and Conservation, NSW (see OEH)
DECC	Department of Environment and Climate Change, NSW (see OEH)
DECCW	Department of Environment, Climate Change and Water, NSW (see OEH)
DA	Development Application
DP	Deposited Plan
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
NSW EPA	Environment Protection Authority of New South Wales
ESL	Ecological Screening Level
F1	TRH C_6 – C_{10} less sum of BTEX concentrations (NEPC, 2013)
F2	TRH $>C_{10}$ – C_{16} less naphthalene (NEPC, 2013)
F3	TRH $>C_{16}$ – C_{34} (NEPC, 2013)
F4	TRH $>C_{34}$ – C_{40} (NEPC, 2013)
HEPA	Heads of EPAs Australia and New Zealand
HIL	Health-based Investigation Level
HMS	Hazardous Materials Survey
HSL	Health-based Screening Level
km	Kilometres
LOR	Limit Of Reporting of laboratory instruments (see PQL)
m	Metres
mAHD	Metres Australian Height Datum
mBGL	Metres Below Ground Level
mg/L	Milligrams per litre
µg/L	Micrograms per litre
NATA	National Association of Testing Authorities, Australia
NEMP	National Environmental Management Plan
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
OCP	Organochlorine pesticides
OPP	Organophosphorus pesticides
OEH	Office of Environment and Heritage, NSW (formerly DEC, DECC, DECCW)
PASS	Potential Acid Sulfate Soils
PAHs	Polycyclic Aromatic Hydrocarbons

PCB	Polychlorinated Biphenyls
PFAS	Per or Poly-Fluoroalkyl Substances
PID	Photo-ionisation Detector
pH	Measure of the acidity or basicity of an aqueous solution
PQL	Practical Quantitation Limit (limit of detection for laboratory instruments)
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
RL	Reduced Level
SRA	Sample receipt advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TPH	Total Petroleum Hydrocarbons (superseded term equivalent to TRH)
TRH	Total Recoverable Hydrocarbons (non-specific analysis of organic compounds)
UCL	Upper Confidence Limit of the mean
UPSS	Underground Petroleum Storage System
UST	Underground Storage Tank

Appendix A - Figures



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Date:	05-05-25
Scale:	Not To Scale

Lawrence Street Pty Ltd
Detailed Site Investigation
10-28 Lawrence Street, Freshwater NSW

Site Locality Plan

Figure:
1

Project: E25874.E02

Map Source: SixMaps, viewed 08/04/2025

LEGEND. Note: all locations are approximate

🟥 Site Boundary	● Borehole Location
🟦 Proposed Basement Boundary	▼ Monitoring Well Location
▼ Previous Monitoring Well Location (EI, 2024)	

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Lawrence Street Pty Ltd

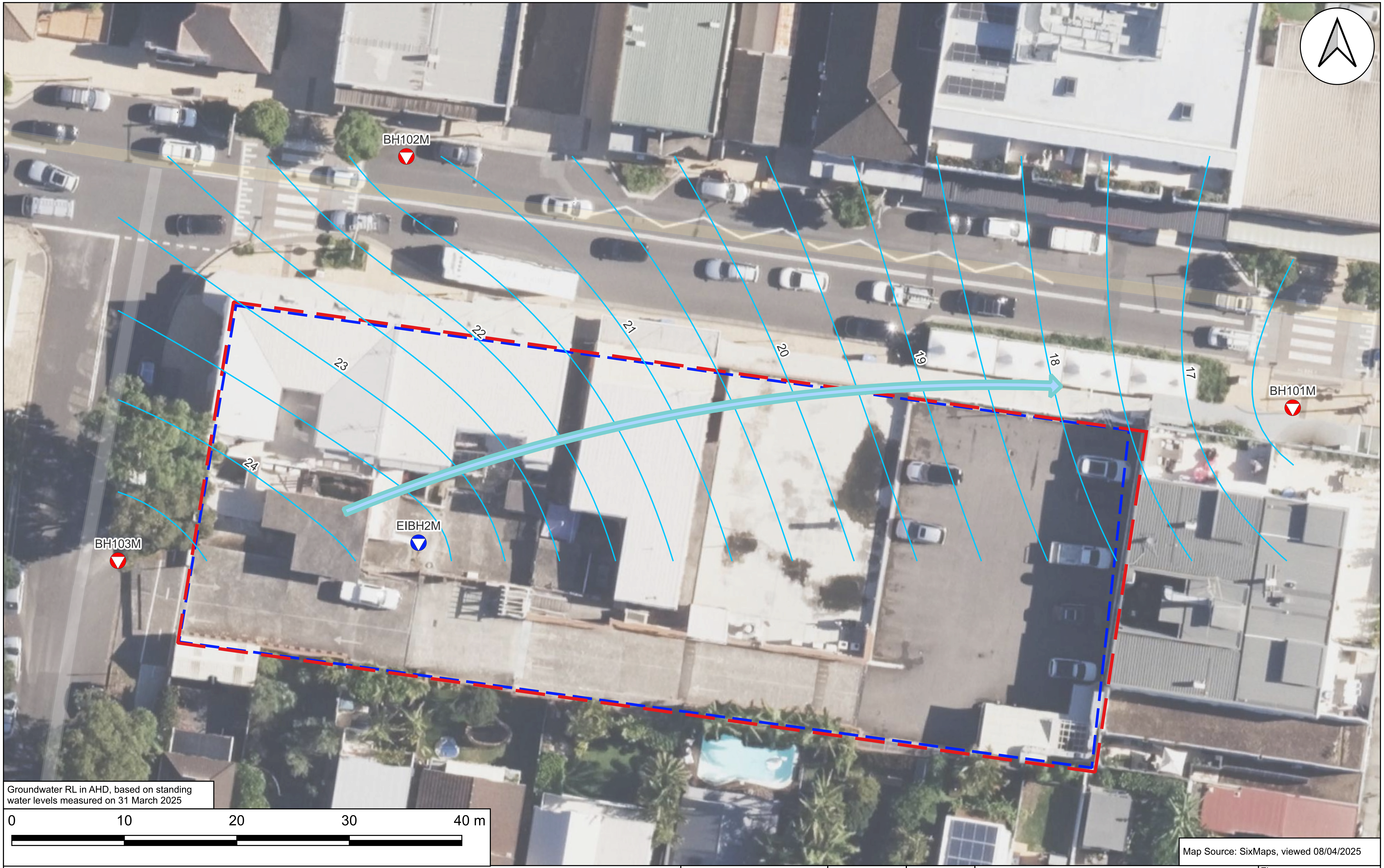
Detailed Site Investigation

10-28 Lawrence Street, Freshwater NSW

Site Sampling Plan

Figure:
2

Project: E25874.E02



Groundwater RL in AHD, based on standing water levels measured on 31 March 2025

Map Source: SixMaps, viewed 08/04/2025

LEGEND. Note: all locations are approximate

- 🟥 Site Boundary
- ▭ Proposed Basement Boundary
- 🔻 Previous Monitoring Well Location (EI, 2024)
- ▼ Monitoring Well Location
- — Groundwater Contour Map
- ➡ Groundwater Flow Direction

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Detailed Site Investigation

10-28 Lawrence Street, Freshwater NSW

Groundwater Contour Plan

Figure:
3

Project: E25874.E02

Appendix B – Tables

Table B.1 – Summary of the Analytical Results

Sample ID	Sampling Date	Total Heavy Metals								PAHs				BTEX				TRHs				OCPs	OPPs	Total PCBs	Asbestos
		As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Carcinogenic PAHs (as B(α)P TEQ)	Benzo(α)pyrene	Total PAHs	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1	F2	F3	F4				Presence / Absence
Fill Soils																									
EIBH1_0.3-0.4	31/03/2025	1.0	0.6	7.3	23.0	84.0	0.1	2.7	210.0	0.5	0.3	2.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<0.1	<1.7	<0.1	No
EIBH2M_0.3-0.4	27/03/2025	<1	<0.3	0.6	4.8	32.0	<0.05	<0.5	24.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<0.1	<1.7	<0.1	No
EIBH3_0.3-0.4	31/03/2025	12.0	2.9	19.0	110.0	1400.0	0.3	6.4	1700.0	0.8	0.60	4.1	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	2.8	<1.7	<0.1	No
EIBH4_0.15-0.2		1.0	<0.3	5.9	6.1	31.0	<0.05	2.9	64.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<0.1	<1.7	<0.1	No
Statistical Analysis																									
Minimum Concentration		1	<0.3	1	5	1	<0.05	3	24	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<0.1	<1.7	<0.1	<0.01
Maximum Concentration		12.0	<0.3	19.0	110.0	1400.0	0.3	6.4	1700.0	0.8	0.6	4.1	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	2.8	<1.7	<0.1	<0.01
Natural Soils																									
EIBH2M_1.0-1.1	27/03/2025	<1	<0.3	1.1	29.0	21.0	<0.05	5.6	37.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
EIBH2M_2.0-2.1		<1	<0.3	2.6	<0.5	3.0	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
Statistical Analysis																									
Minimum Concentration		<1	<0.3	<0.5	<0.5	<1	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120		-	-	No
Maximum Concentration		<1	<0.3	2.6	29.0	21.0	<0.05	5.6	37.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	-	-	-	No
NEPM (2013) Criteria																									
[1] NEPC (2013) *HIL-B* Residential settings with minimal soil access		500	150	500 Cr_{VI}	30,000	1200	120	1,200	60,000	4		400										600		1	
[2] NEPC (2013) *HSL-A&B* Low to high density residential settings (sand-dominated soils)		Source depths (0 m to <1 m BGL)											3	0.5	160	NL	40	45	110						
		Source depths (1 m to <2 m BGL)											NL	0.5	220	NL	60	70	240						
		Source depths (2 m to < 4 m BGL)											NL	0.5	310	NL	95	110	440						
		Source depths (4 m + BGL)											NL	0.5	540	NL	170	200	NL						
[3] *EIL/ESL* for Urban Residential and Public Open Space		100	NC	580 Cr_{VI}	140	1100	NC	65	360	NC	0.7	NC	170	65	105	125	45	180	120	1,300	5,600	180	NC	NC	NC
NEPC (2013) *HSL-B* visible ACM on ground surface																									Absent

Footnotes:

All results are recorded in mg/kg, except asbestos is presebce/absence identification (at 0.01% w/w semi-quantitative detection limit) or % w/w (gravimetric qualititative method)

🟨	Highlighted value indicates asbestos presence
🟦	Highlight value indicates exceedence of guideline
NR	No current published criterion.
NL	Not Limiting
NA	Not analysed
NC	No criterion available
AF/FA	Asbestos fines / fibrous asbestos (equates to friable ACM)
NEPC [1]	HIL - Health based investigation levels.
NEPC [2]	HSL - Health based screening levels for vapour intrusion - Coarse Grained soil values were applied, being the most conservative of the material types.
NEPC [3]	EIL - Ecological investigation levels and ESL- Ecological screening levels. These are generic and site-specific values derived for the site using ASC NEPM Schedule B1, Tables 1B(1), 1B(2), 1B(3), 1B(4), 1B(5) and 1B(6). EILs / ESLs only apply to the top 2.0 m (root zone).
4	HEPA (2020) The PFAS National Environmental Management Plan (NEMP) provides health-based guideline values for PFAS compounds in soils. Table 6 - Landfill acceptance criteria.
F2 TRHs	>C_{10}-C_{16} TRHs, less the concentration of naphthalene
F3 TRHs	>C_{16}-C_{34} TRHs
F4 TRHs	>C_{34}-C_{40} TRHs
(Value*)	Silica Gel clean up.

Table B2 - Groundwater Analytical Results for Groundwater Monitoring Events

E25874 - Freshwater

Sample Identification	Date	Metals									BTEX					PAHs [9]			TRHs				VOCs [8]		Total Cyanide	Total Phenols
		Al	As	Cd	Cr [3]	Cu	Pb	Ni	Zn	Hg	Benzene	Toluene	Ethylbenzene	m + p-xylene	o-xylene	Benzo(α)pyrene	Naphthalene	Total PAH	F1	F2	F3	F4	Tetrachloroethene (Perchloroethylene,PCE)	Total VOCs		
Previous groundwater samples (EI, 2023)																										
GWBH2M-1	9/04/2025	1100	1	<0.1	4	36	3	3	30	<0.1	<0.5	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<1	<50	<60	<500	<500	<0.5	<10	<4	<50
Maximum Concentration		1100	1	<0.1	4	36	3	3	30	<0.1	<0.5	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<1	<50	<60	<500	<500	<0.5	<10	<4	<50
Guidelines																										
ANZG (2018)[1]	**Marine Water**			0.7 [5]	27.4 (CrIII) 4.4 (CrVI)	1.3	4.4	7 [5]	15	0.1 [5]	500	180	5	275	350	0.1	50		50 [4]	60 [4]	500 [4]	500 [4]			4	400
NHMRC (2022) [2]	**Recreational Water [2a]**	200*	100	20		1,000 *	100	200	3,000*	10	10	25*	3*	20 *	20 *	0.1							500		800	

Notes:

All values are µg/L unless stated otherwise

F1	C6-C10 minus BTEX
F2	>C10-C16 minus naphthalene
F3	(>C16-C34)
F4	(>C34-C40)

[1] Groundwater Investigation Levels for fresh and marine water, based on ANZG (2018) Australian and New Zealand Guidelines for 95% protection level.

[2] Based on NHMRC (2022 - update January 2022 v.3.9) Drinking Water Guidelines.

[2a] 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 *

[3] Value is for total Chromium

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

[5] To account for the bioaccumulating nature of this toxicant, 99% species protection level DGV is used for slightly to moderately disturbed systems. Refer to Warne et al. (2017) for details.

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

[7] Guideline value provided for when the water pH >6.5

[8] Listed all tested main VOC, all the other tested VOCs were below PQL.

[9] Listed all tested main PAHs, all the other tested PAHs were below PQL.

[10] For the metals copper and zinc, which are naturally above the ANZG 2018 95% Marine DGVs under regional (background) conditions, discharge water criteria are set at one order of magnitude higher than the DGV.

🟨	Highlighted indicates values exceeded criteria
🟦	Highlighted indicates criteria not met

Table B.3 - QAQC Assessment

Sample identification	Description	Date	TRH				BTEX				Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate - Soil Investigation																		
EIBH1_0.3-0.4	Soil	31/03/2025	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	1	0.6	7.3	23	84	0.07	2.7	210
QD1	Field Duplicate of EIBH1_0.3-0.4		<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	1	0.5	7.7	24	87	0.07	4	190
	RPD	-	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*18.18*	*5.33*	*4.26*	*3.51*	*0.00*	*38.81*	*10.00*
Inter-laboratory Duplicate - Soil Investigation																		
EIBH1_0.3-0.4	Soil	31/03/2025	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	1	0.6	7.3	23	84	0.07	2.7	210
QT1	Field Duplicate of EIBH1_0.3-0.4		<25	<50	<100	<100	<0.2	<0.5	<1	<1	<4	1	10	47	110	0.4	5	260
	RPD	-	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	**120.00**	*50.00*	*31.21*	**68.57**	*26.80*	**140.43**	**59.74**	*21.28*
Rinsate Blanks																		
QR1	Equipment Rinsate	28/01/2025	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5
Trip Blanks																		
TRIP BLANK	Soil trip blank	Laboratory Prepared	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
Trip Spikes																		
TRIP SPIKE	Soil trip spike	Laboratory Prepared	-	-	-	-	[104%]	[103%]	[102%]	-	-	-	-	-	-	-	-	-
Intra-laboratory Duplicate - Groundwater Investigation																		
BH2M	Groundwater	9/04/2025	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	1	<0.1	4	36	3	<0.1	3	30
QD1	Field Duplicate of BH2M		<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	1	<0.1	4	36	3	<0.1	3	30
	RPD	-	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Inter-laboratory Duplicate - Groundwater Investigation																		
BH2M	Groundwater	9/04/2025	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	1	<0.1	4	36	3	<0.1	3	30
QT1	Field Duplicate of BH2M		<10	<50	<100	<100	<1	<1	<1	-	1	<0.1	4	34	2	<0.05	3	26
	RPD	-	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	-	*0.00*	*0.00*	*0.00*	*5.71*	*40.00*	*NA*	*0.00*	*14.29*
Rinsate Blanks																		
GWQR1	Equipment Rinsate	9/04/2025	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5
Trip Blanks																		
TB	Water trip blank	Laboratory Prepared	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
Trip Spikes																		
TS	Water trip spike	Laboratory Prepared	-	-	-	-	[101%]	[98%]	[113%]	-	-	-	-	-	-	-	-	-

NOTE: All results are reported in mg/kg (soil) or µg/L (water)

66.67	RPD calculated by halving detection limit exceeds 30-50% range referenced from AS4482.1 (2005)
52.87	RPD exceeds 30-50% range referenced from AS4482.1 (2005)

F1 = TRH C6-C10 less the sum of BTEX
F2 = TRH >C10-C16 less naphthalene
F3 = TRH >C16-C34
F4 = TRH >C34-C40

[1] Value shown is the lowest recovery value reported for xylenes

Appendix C – Site Photographs

Photograph 1: View looking west, showing the northern facing site, standing on Lawrence Street

Photograph 2: View looking North-west, showing the carpark on the eastern side of the site.

Photograph 3: View looking west, showing the concrete paved driveway at the back of the site.

Photograph 4: Aerial view facing east, showing the condition of concrete in courtyard at the rear of properties. (Location of EIBH2M)

Photograph 5: Facing west, garbage room located at base of pedestrian access stairs from above rooftop carpark.

Photograph 6: Facing south, above ground grease trap located in the garbage room at base of pedestrian access stairs from above rooftop carpark.

Photograph 7: Ash/Slag observed in fill soils at EIBH3

Appendix D – Borehole Logs

BOREHOLE LOG

BH ID: EIBH1

Location	10-28 Lawrence Street, Freshwater, NSW	**Started**	27 March 2025		
Client	Lawrence Street PTY LTD	**Completed**	27 March 2025		
Job No.	E25874.E02	**Logged By**	JGD	**Date**	27 March 2025
Sheets	1 of 1	**Review By**	SR	**Date**	01 April 2025

Drilling Contractor	-	**Surface RL**	-	**Latitude**	-
Plant	Tight-Access 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
HA	GWNE			0.00			CONCRETE: Concrete, No odour260mm thick	D - M		CONCRETE
		EIBH1_0.3-0.4	■	0.26			FILL: Silty SAND: medium to coarse grained, brown/gold with sandstone gravels (sub-angular to angular), No odour			FILL
							Terminated at 0.40m. Target depth reached.			

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

BOREHOLE LOG

BH ID: EIBH2M

Location	10-28 Lawrence Street, Freshwater, NSW	**Started**	27 March 2025		
Client	Lawrence Street PTY LTD	**Completed**	27 March 2025		
Job No.	E25874.E02	**Logged By**	JGD	**Date**	27 March 2025
Sheets	1 of 2	**Review By**	SR	**Date**	01 April 2025

Drilling Contractor	-	**Surface RL**	-	**Latitude**	-
Plant	Tight-Access 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
HA	GWNE			0.00			CONCRETE: Concrete, No odour50mm thick			CONCRETE
		EIBH2M_0.1-0.2	■	0.05			FILL: Silty SAND: medium to coarse grained, dark grey with sandstone gravels (sub-angular to angular), No odour			FILL
		EIBH2M_0.3-0.4	■	0.20			From 0.20m to 0.45m, Colour change: light grey, No odour			FILL
		EIBH2M_0.6-0.7	■	0.45			FILL: Silty SAND: medium to coarse grained, light grey with quartz gravels (sub-angular to angular), No odour			FILL
NMLC		EIBH2M_1-1.1 EIBH2M_1.4-1.5 EIBH2M_2-2.1	■ ■ ■	0.78			SANDSTONE: medium to coarse grained, pale grey, low to medium strength with quartz gravels- sub angular to angular., No odour	D - M		NATURAL

BOREHOLE LOG

BH ID: EIBH2M

Location	10-28 Lawrence Street, Freshwater, NSW	**Started**	27 March 2025		
Client	Lawrence Street PTY LTD	**Completed**	27 March 2025		
Job No.	E25874.E02	**Logged By**	JGD	**Date**	27 March 2025
Sheets	2 of 2	**Review By**	SR	**Date**	01 April 2025

Drilling Contractor	-	**Surface RL**	-	**Latitude**	-
Plant	Tight-Access 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
NMLC							SANDSTONE: medium to coarse grained, pale grey, low to medium strength with quartz gravels- sub angular to angular., No odour	D - M		NATURAL
				10.90 11			SHALE: dark grey, medium to high strength., No odour			
				12						
				13						
							Terminated at 13.28m. Target depth reached.			
				14						
				15						
				16						
				17						
				18						
				19						
				20						

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

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BOREHOLE LOG

BH ID: EIBH3

Location	10-28 Lawrence Street, Freshwater, NSW	**Started**	27 March 2025		
Client	Lawrence Street PTY LTD	**Completed**	27 March 2025		
Job No.	E25874.E02	**Logged By**	JGD	**Date**	27 March 2025
Sheets	1 of 1	**Review By**	SR	**Date**	01 April 2025

Drilling Contractor	-	**Surface RL**	-	**Latitude**	-
Plant	Tight-Access 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
HA	GWNE			0 0.00			CONCRETE: Concrete, No odour170mm thick			CONCRETE
		EIBH3_0.3-0.4	■	0.17			FILL: Silty SAND: medium to coarse grained, brown with sandstone gravels (sub-angular to angular) trace ash., No odour	D - M		FILL
							Terminated at 0.45m. Target depth reached.			
				1						
				2						
				3						
				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: EIBH4

Location	10-28 Lawrence Street, Freshwater, NSW	**Started**	27 March 2025		
Client	Lawrence Street PTY LTD	**Completed**	27 March 2025		
Job No.	E25874.E02	**Logged By**	JGD	**Date**	27 March 2025
Sheets	1 of 1	**Review By**	SR	**Date**	01 April 2025

Drilling Contractor	-	**Surface RL**	-	**Latitude**	-
Plant	Tight-Access 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
HA	GWNE	EIBH4_0.1-0.15 EIBH4_0.15-0.2	■	0 0.00			CONCRETE: Concrete, No odour100mm thick	D - M		CONCRETE
				0.10			FILL: SAND: medium to coarse grained, gold with shells., No odour			FILL
				0.15			FILL: Silty SAND: medium to coarse grained, dark grey with gravels (sub-angular to angular), Builders plastic and shells., No odour			
							Terminated at 0.21m. Target depth reached.			
				1						
				2						
				3						
				4						
				5						
				6						
				7						
				8						
				9						
				10						

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

Appendix E – Field Notes and Calibration Records

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PYRMONT, NSW, 2009

ABN 33 102 449 507
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W www.eiaustralia.com.au
T 02 9516 0722

CALIBRATION CERTIFICATE
FOR PHOTO IONISATION DETECTOR

Instrument: Mini RAE 3000

Serial Number: 592-906667 - EI PID02 ☐ OR 592-901345 - EI PID03 ☒ OR ________ EI PID___ ☐

Instrument Conditions: Good

Calibration gas species: Isobutylene.

Calibration gas concentration: __100.00 ppm

Gas bottle number: 5004970 (W0375843)

This PID has been calibrated to Isobutylene gas with the span concentration displayed as

100 ppm at 100 ppm span setting (allowable range +/-10ppm from span setting).

The PID is initially zero calibrated in fresh air.

Remaining gas in bottle: 320 psi (if reading is <250 psi, notify Equipment Manager to arrange new gas bottle order)

The above detector was calibrated in accordance with manufacturer's specifications.

Signed:

Date: 27/03/25

Time: AM

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 10-28 lawrence St freshie	Job Number: E25874
Client:	Date: 9/4/25
Field Staff:	Sampling Location ID BH2M
Well Location:	Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stick up / [✓ down] (m): -0.11 m (+ above ground - below ground)
Initial Well Depth (mBTOC): 13.28	Screen Interval (mBTOC): -
Previous Sampling Date: N/A	Previous SWL (mBTOC): -

PID READINGS

PID Headspace (ppm): 0.2	PID Background (ppm): 0.0
PID Breathing Space (ppm): 0.0	

PRE PURGE

Total Well Depth (mBTOC): 13.2	Well Head Condition: Good - Flooded
SWL (mBTOC): 2.47 m	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): 11m	Fill Timer:
Pump Pressure Regulator (psi):	Discharge Timer:
Weather Conditions: Rain	Cycle:
Pump on time: 11:35	Pump off time:

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
11:40	0.5	2.67	20.91	298	122.7	0	0	clear
11:45	1.0	2.70	21.03	300	80.6	-	-	
11:50	1.5	2.75	21.05	299	-119.9	-	-	
11:55	2.0	2.76	21.1	290	-98.3	-	-	
12:00	2.5	2.78	21.08	290	-107.8	-	-	
12:05	3.0	2.79	21.34	297	-129.8	-	-	
12:10	3.5	2.80	21.27	298	-133.8			
12:15	4.0	2.81	21.26	298	-149.4			
12:18	4.2	2.81	21.24	299	-133.6			
12:20								
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

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CALIBRATION CERTIFICATE
FOR PHOTO IONISATION DETECTOR

Instrument: Mini RAE 3000

Serial Number: 592-906667 - EI PID02 ☐ OR 592-901345 - EI PID03 ☒ OR _______ EI PID___ ☐

Instrument Conditions: Good

Calibration gas species: Isobutylene.

Calibration gas concentration: __100_____ppm

Bump test passed

Gas bottle number: ________ __________

This PID has been calibrated to Isobutylene gas with the span concentration displayed as

___ppm at __ppm span setting (allowable range +/-10ppm from span setting).

The PID is initially zero calibrated in fresh air.

Remaining gas in bottle: ____psi (if reading is <250 psi, notify Equipment Manager to arrange new gas bottle order)

The above detector was calibrated in accordance with manufacturer's specifications.

Signed: ____________

Date: 9/04/25

Time: AM

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T 02 9516 0722

CALIBRATION CERTIFICATE
FOR PHOTO IONISATION DETECTOR

Instrument: Mini RAE 3000

Serial Number: 592-906667 - EI PID02 ☐ OR 592-901345 - EI PID03 ☒ OR ________ EI PID___ ☐

Instrument Conditions: Good

Bump test passed

~~Calibration gas species: Isobutylene.~~

~~Calibration gas concentration: __100_____ppm~~

~~Gas bottle number: ________ __________~~

~~This PID has been calibrated to Isobutylene gas with the span concentration displayed as ___ppm at __ppm span setting (allowable range +/-10ppm from span setting).~~

~~The PID is initially zero calibrated in fresh air.~~

~~Remaining gas in bottle: ____psi (if reading is <250 psi, notify Equipment Manager to arrange new gas bottle order)~~

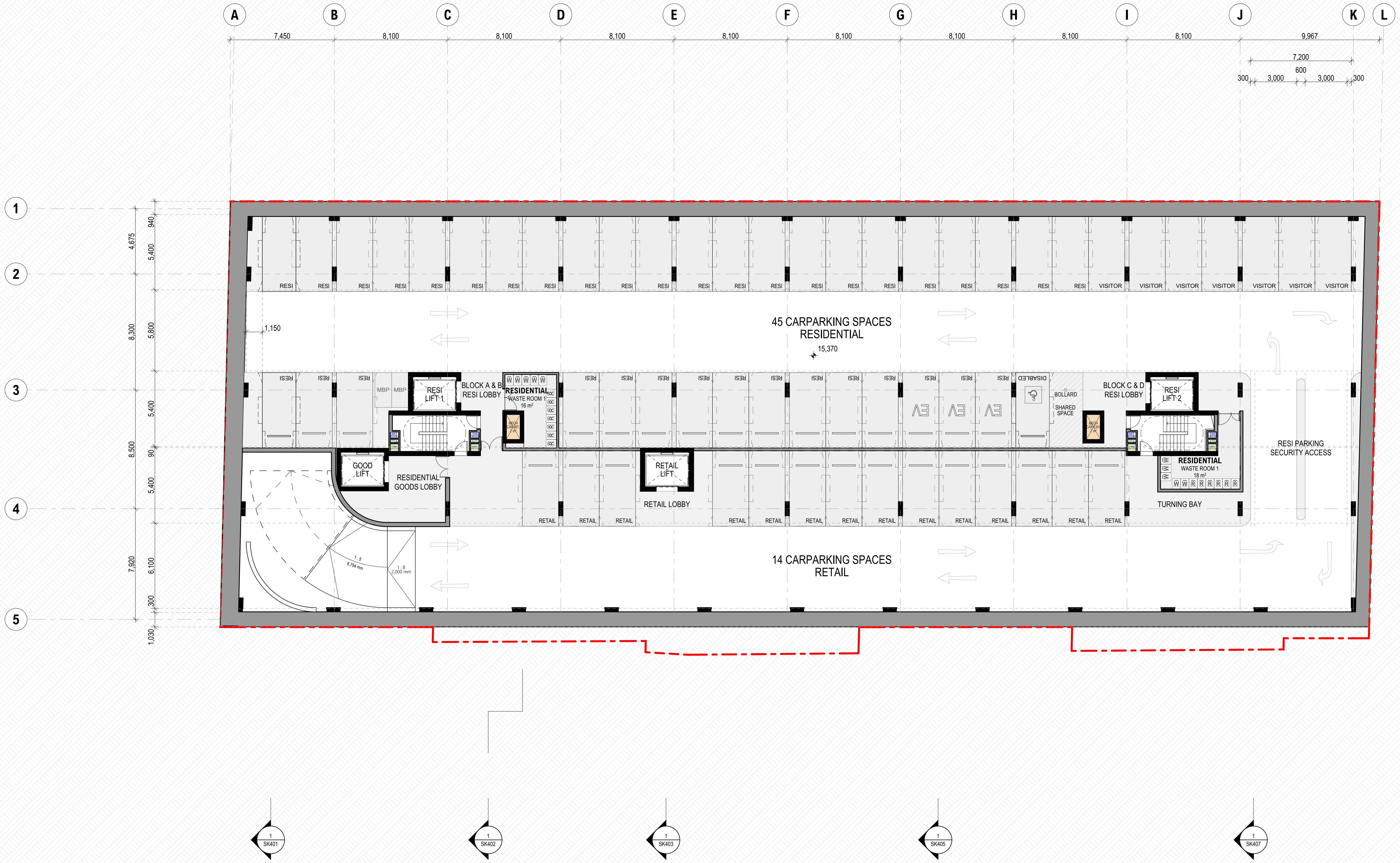
The above detector was calibrated in accordance with manufacturer's specifications.

Signed: ______________

Date: 31/03/25

Time: PM

Appendix F – Architectural Plans



ARCHITECT

CHROFI

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T +61 2 8096 8500 E info@chrofi.com

CHOI ROPIHA FIGHERA P/L ACN 144 714 885 ATF CHOI ROPIHA FIGHERA UNIT TRUST T/A CHROFI ABN 22 365 257 187 NOMINATED ARCHITECT JOHN CHOI 8706 TAI ROPIHA 6568 STEVEN FIGHERA 6609

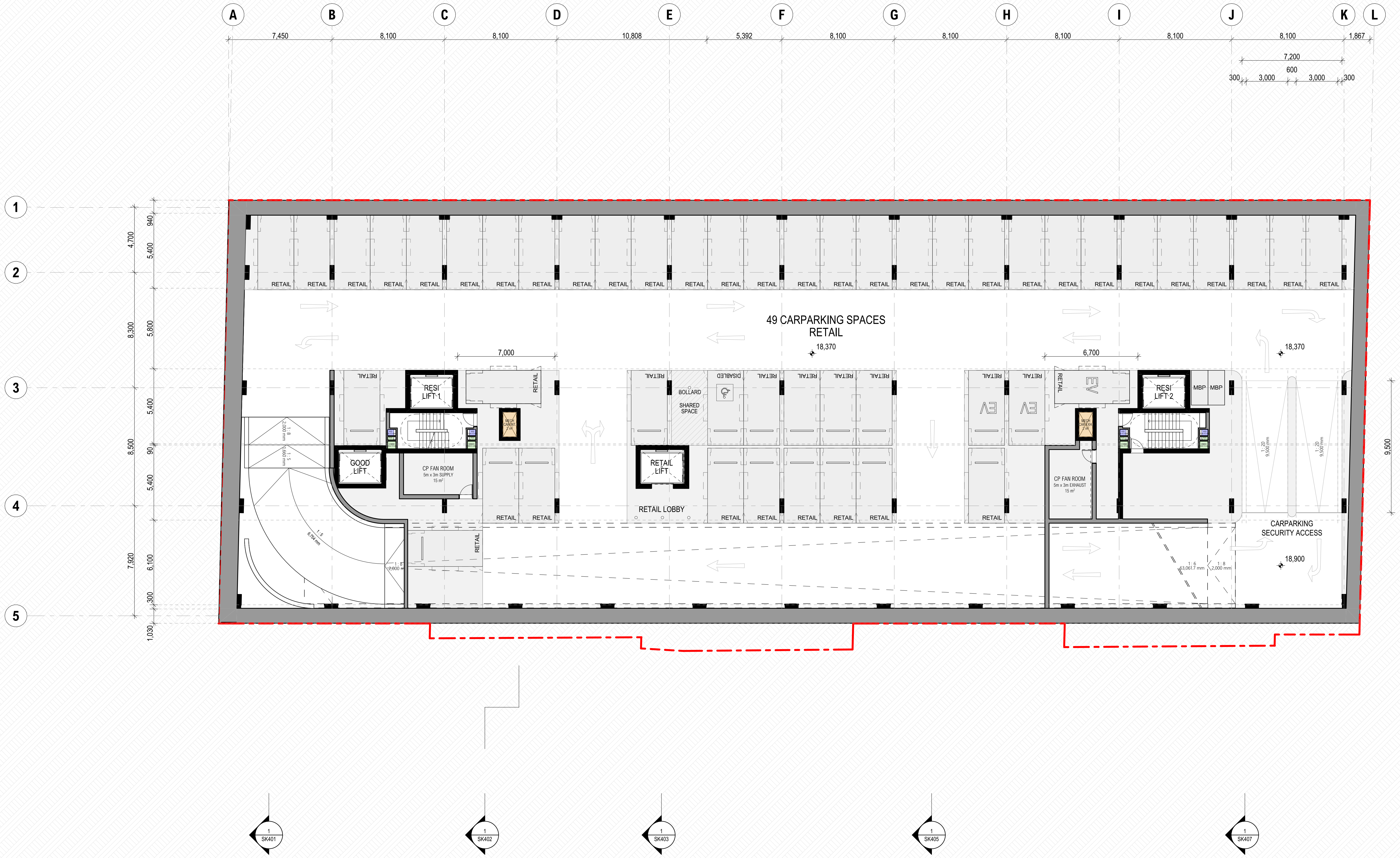
REV	DATE	ISSUE
01	01/10/24	ISSUE FOR COORDINATION
02	14/10/24	ISSUE FOR COORDINATION

REV	DATE	ISSUE

PROJECT
FRESHIE MIXED-USE DEVELOPMENT

DRAWING TITLE
BASEMENT 2

PROJECT NUMBER	PLOT DATE	DRAWN	CHECKED	SHEET SCALE	SHEET SIZE	NORTH	DRAWING NUMBER	REVISION
21053	14/10/24	VL	SF	1:200	A1	N	A-DA-097	02



ARCHITECT

CHROFI

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CHOI ROPIHA FIGHERA P/L ACN 144 714 885 ATF CHOI ROPIHA FIGHERA UNIT TRUST T/A CHROFI ABN 22 365 257 187 NOMINATED ARCHITECT JOHN CHOI 8706 TAI ROPIHA 6568 STEVEN FIGHERA 6609

REV	DATE	ISSUE
01	01/10/24	ISSUE FOR COORDINATION
02	14/10/24	ISSUE FOR COORDINATION

REV	DATE	ISSUE

PROJECT
FRESHIE MIXED-USE DEVELOPMENT

PROJECT NUMBER	PLOT DATE	DRAWN	CHECKED	SHEET SCALE	SHEET SIZE	NORTH
21053	14/10/24	VL	SF	1:200	A1	N

DRAWING TITLE
BASEMENT 1

DRAWING NUMBER
A-DA-098

REVISION
02

ARCHITECT

CHROFI

3/1 THE CORSO MANLY NSW 2095 AUSTRALIA
T +61 2 8096 8500   E info@chrofi.com

CHOI ROPIHA FIGHERA P/L ACN 144 714 885 ATF CHOI ROPIHA FIGHERA UNIT TRUST T/A CHROFI ABN
22 365 257 187 NOMINATED ARCHITECT JOHN CHOI 8706 TAI ROPIHA 6568 STEVEN FIGHERA 6609

REV	DATE	ISSUE
01	01/10/24	ISSUE FOR COORDINATION
02	14/10/24	ISSUE FOR COORDINATION

REV	DATE	ISSUE

PROJECT
FRESHIE MIXED-USE DEVELOPMENT

PROJECT NUMBER	PLOT DATE	DRAWN	CHECKED	SHEET SCALE	SHEET SIZE	NORTH
21053	14/10/24	VL	SF	1:200	A1	N

DRAWING TITLE
LOWER GROUND FLOOR PLAN

DRAWING NUMBER	REVISION
A-DA-099	02

ARCHITECT

CHROFI

3/1 THE CORSO MANLY NSW 2095 AUSTRALIA
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CHOI ROPIHA FIGHERA P/L ACN 144 714 885 ATF CHOI ROPIHA FIGHERA UNIT TRUST T/A CHROFI ABN 22 365 257 187 NOMINATED ARCHITECT JOHN CHOI 8706 TAI ROPIHA 6568 STEVEN FIGHERA 6609

REV	DATE	ISSUE
01	01/10/24	ISSUE FOR COORDINATION
02	14/10/24	ISSUE FOR COORDINATION

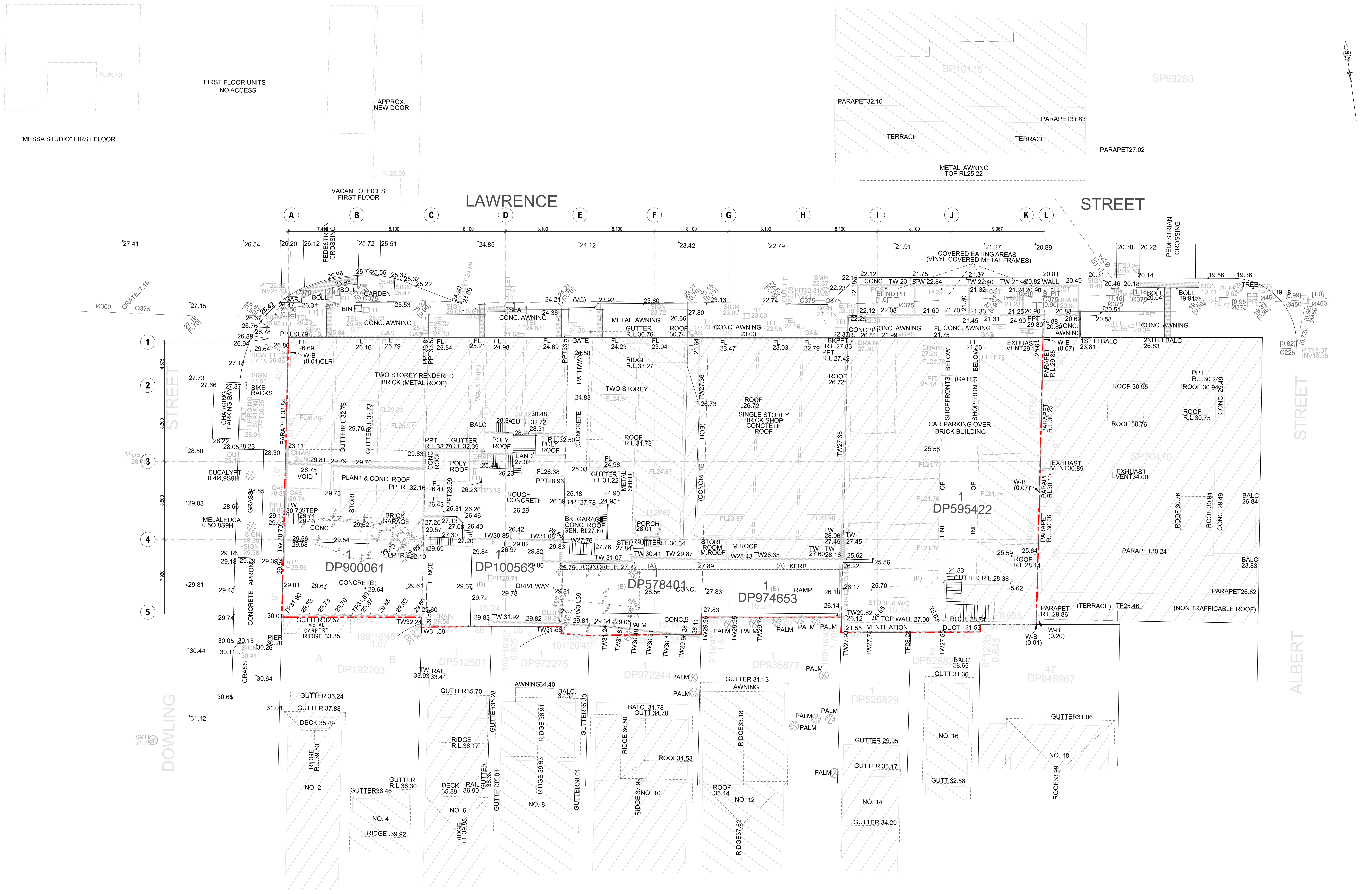
REV	DATE	ISSUE

PROJECT
FRESHIE MIXED-USE DEVELOPMENT

PROJECT NUMBER	PLOT DATE	DRAWN	CHECKED	SHEET SCALE	SHEET SIZE	NORTH
21053	14/10/24	VL	SF	1:200	A1	N

DRAWING TITLE
UPPER GROUND FLOOR PLAN

DRAWING NUMBER	REVISION
A-DA-100	02



ARCHITECT

CHROFI

3/1 THE CORSO MANLY NSW 2095 AUSTRALIA
T +61 2 8096 8500 E info@chrofi.com

CHOI ROPIHA FIGHERA P/L ACN 144 714 885 ATF CHOI ROPIHA FIGHERA UNIT TRUST T/A CHROFI ABN
22 365 257 187 NOMINATED ARCHITECT JOHN CHOI 8706 TAI ROPIHA 6568 STEVEN FIGHERA 6609

REV	DATE	ISSUE
01	01/10/24	ISSUE FOR COORDINATION
02	14/10/24	ISSUE FOR COORDINATION

REV	DATE	ISSUE

PROJECT
FRESHIE MIXED-USE DEVELOPMENT

DRAWING TITLE
SURVEY

PROJECT NUMBER	PLOT DATE	DRAWN	CHECKED	SHEET SCALE	SHEET SIZE	NORTH	DRAWING NUMBER	REVISION
21053	14/10/24	VL	SF	1:200	A1	N	A-DA-001	02

Appendix G – Chain of Custody and Sample Receipt Forms

Sheet 1 of 2

Site: 10-28 Lawrence St, Freshwater, NSW

Project No: E25874

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

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: SOIL	WATER	0.45 µm field filtered	OTHER	Analysis: HM ^A /TRH (including F1, F2, F3, F4)/BTEX/ PAHs/ OCP/OP/PCB/Asbestos	HM ^A /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM ^A /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	~~Asbestos~~ cVOCs	Asbestos Quantification (500ml)	Asbestos 10L field screening	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM^A /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 ^B / PAH
1 EIBH1_0.3-0.4		JZLB	31/03	AM	X				X																				
EIBH2M_0.1-0.2			27/03																										
2 EIBH2M_0.3-0.4									X					X															
EIBH2M_0.6-0.7																													
3 EIBH2M_1.0-1.1										X																			
EIBH2M_1.4-1.5																													
4 EIBH2M_2.0-2.1			↓							X				X															
5 EIBH3_0.3-0.4			31/03						X																				
EIBH4_0.1-0.15																													
6 EIBH4_0.15-0.2		↓	↓	↓	↓						X																		
7 QD1		J	↓	↓	↓				X																				
8 TS		VC	31/03	AM	X							X																	

Comments

HM ^A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM ^B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH
Total Phenol

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.

Report with EI Waste Classification Table ☒

Sampler's Name (EI): JGD/MO
Print: Jordan Goehner-Drewe
Signature:
Date: 1/04/25

Received by (SGS):
Print:
Signature: B. Subary
Date: 01/04/25 @ 2:20

Sampler's Comments: CC. sergio.raposeira@eiaustralia.com.au in results

eiaustralia
Contamination | Remediation | Geotechnical

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

COC November 2024 FORM v.6 - SGS

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

SGS EHS Sydney COC
SE280680

source: SE_Autoscan.pdf page: 1 SGS Ref: SE280680_COC

Sheet 2 of 2

Site: 10-28 lawrence st, Freshwater, NSW

Project No: E25874

Laboratory:

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

	Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix				Analysis																				
				Date	Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM^{A} /TRH (including F1, F2, F3, F4)/BTEX/ PAHs/ OCP/OP/PCB/Asbestos	HM^{A} /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM^{A} /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification (500ml)	Asbestos 10L field screening	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM^{A} /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^{B} / PAH
9	TB		VC	31/03	AM	X							X																	
10	QR1		SPVC	↓	↓		X					X																		
	QRB1		SPVC	↓	↓		X																							

Comments

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

HM^{B}
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH
Total Phenol

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): JGD/MO
Print Jordan Goehner-Drewe
Signature
Date 1/9/2025

Received by (SGS):
Print
Signature
Date 01/04/25 @ 2-20

Report with EI Waste Classification Table ☒

Sampler's Comments:
CC Sergio in results

eiaustralia

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

COC November 2024 FORM v.6 - SGS

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

Luong, Thi Song Van (Alexandria)

From: Jordan Goehner-Drewe - EIAustralia <Jordan.Goehner-Drewe@eiaustralia.com.au>
Sent: Tuesday, 1 April 2025 5:24 PM
To: AU.SampleReceipt.Sydney, AU (Sydney); AU.Environmental.Sydney, AU (Sydney)
Cc: Sergio Raposeira - EIAustralia
Subject: [EXTERNAL] Re: E25874 - Freshwater

Hi SGS,

Please forward QT1 to envirolab. Thankyou!

Kind Regards,

Jordan Goehner-Drewe
Environmental Engineer
0449 149 099
jordan.goehner-drewe@eiaustralia.com.au

From: Jordan Goehner-Drewe - EIAustralia <Jordan.Goehner-Drewe@eiaustralia.com.au>
Sent: Tuesday, April 1, 2025 3:38:31 PM
To: AU.SampleReceipt.Sydney, AU (Sydney) <AU.SampleReceipt.Sydney@sgs.com>; 'AU.Environmental.Sydney@SGS.com' <AU.Environmental.Sydney@SGS.com>
Cc: Sergio Raposeira - EIAustralia <sergio.raposeira@eiaustralia.com.au>
Subject: E25874 - Freshwater

Hi SGS,

Please see attached COC for samples picked up by courier today and the samples on hold (collected by courier on 28/03/25).

Thankyou very much!

Best Regards,

Jordan Goehner-Drewe
Graduate Environmental Engineer
T 02 9516 0722
M 0449 149 099
E jordan.goehner-drewe@eiaustralia.com.au

eiaustralia
Practical Solutions for Built Environments

SAMPLE RECEIPT ADVICE

SE280680

CLIENT DETAILS

Contact	Mathias Oros
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	mathias.oros@eiaustralia.com.au
Project	**E25874 10-28 Lawrence st, Freshwater N**
Order Number	**E25874**
Samples	10

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 1/4/2025
Report Due	Tue 8/4/2025
SGS Reference	**SE280680**

SUBMISSION DETAILS

This is to confirm that 10 samples were received on Tuesday 1/4/2025. Results are expected to be ready by COB Tuesday 8/4/2025. Please quote SGS reference SE280680 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	9 Soil,1 Water	Type of documentation received	COC
Date documentation received	1/4/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	9.3°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 water and 4 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.
Extra sample EIBH2M_Water and extra set of TS/TB received.
QT1 forwarded to Envirolab.

SAMPLE RECEIPT ADVICE

SE280680

CLIENT DETAILS

Client EI AUSTRALIA

Project E25874 10-28 Lawrence st, Freshwater N

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	EIBH1_0.3-0.4	27	14	26	9	7	10	11	7
002	EIBH2M_0.3-0.4	27	14	26	9	7	10	81	7
003	EIBH2M_1.0-1.1	-	-	26	-	7	10	11	7
004	EIBH2M_2.0-2.1	-	-	26	-	7	10	81	7
005	EIBH3_0.3-0.4	27	14	26	9	7	10	11	7
006	EIBH4_0.15-0.2	-	-	-	-	7	10	11	7
007	QD1	27	14	26	9	7	10	11	7
008	TS	-	-	-	-	-	-	11	-
009	TB	-	-	-	-	-	-	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

SE280680

CLIENT DETAILS

Client	EI AUSTRALIA	Project	E25874 10-28 Lawrence st, Freshwater N

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	EIBH1_0.3-0.4	3	1	1
002	EIBH2M_0.3-0.4	3	1	1
003	EIBH2M_1.0-1.1	-	1	1
004	EIBH2M_2.0-2.1	-	1	1
005	EIBH3_0.3-0.4	3	1	1
006	EIBH4_0.15-0.2	-	1	1
007	QD1	3	1	1
009	TB	-	-	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

CLIENT DETAILS

Client	EI AUSTRALIA	Project	E25874 10-28 Lawrence st, Freshwater N

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
010	QR1	1	7	9	11	7

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_

Site: 10-28 lawrence st, Freshwater, NSW

Project No: E25874

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

Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix				Analysis																				
			Date	Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM^{A} /TRH (including F1, F2, F3, F4)/BTEX/ PAHs/ OCP/OP/PCB/Asbestos	HM^{A} /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM^{A} /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification (500ml)	Asbestos 10L field screening	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM^{A} /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^{B} / PAH
GWBH2M-1	1	SPVC	9/04/25	AM		X							X							X									
GWQD1	2	↓	↓	↓		↓					X																		
GWQR1	3	↓	↓	↓		↓					X																		
GWQRB1		↓	↓	↓		↓																							
TS	4	VC	↓	↓		↓						X																	
TB	5	VC	↓	↓		↓						X																	

SGS EHS Sydney COC
SE281162

Comments

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

HM^{B}
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH
Total Phenol

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.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):
Print Jordan Goehner-Drewe
Signature
Date 9/4/25

Received by (SGS):
Print Joel K
Signature
Date 9/4/25 @ 3pm

Sampler's Comments:
Please QT1 to envirolab.
cc sergio results
thanks.

eiaustralia
Contamination | Remediation | Geotechnical

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

COC June 2021 FORM v.5 - SGS

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

Yin, Emily (Alexandria)

From: Jordan Goehner-Drewe - EIAustralia <Jordan.Goehner-Drewe@eiaustralia.com.au>
Sent: Wednesday, 9 April 2025 3:16 PM
To: AU.SampleReceipt.Sydney, AU (Sydney); AU.Environmental.Sydney, AU (Sydney)
Cc: Sergio Raposeira - EIAustralia
Subject: [EXTERNAL] E25874 - Freshwater
Attachments: 09042025151602-0001.pdf

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi SGS,

Please see attached coc for samples picked up today from the office. Please forward QT1 to Envirolab. Thankyou!

Best Regards,

Jordan Goehner-Drewe
Graduate Environmental Engineer

T 02 9516 0722
M 0449 149 099
E jordan.goehner-drewe@eiaustralia.com.au

Suite 6.01, 55 Miller Street
Pyrmont, NSW 2009

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SAMPLE RECEIPT ADVICE

SE281162

CLIENT DETAILS

Contact	Jordan Goehner Drewe
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	jordan.goehner-drewe@eiaustralia.com.au
Project	**E25874 10-28 Lawrence St, Freshwater, NS**
Order Number	**E25874**
Samples	5

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 9/4/2025
Report Due	Wed 16/4/2025
SGS Reference	**SE281162**

SUBMISSION DETAILS

This is to confirm that 5 samples were received on Wednesday 9/4/2025. Results are expected to be ready by COB Wednesday 16/4/2025. Please quote SGS reference SE281162 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Type of documentation received	COC	Date documentation received	9/4/2025
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	18.1°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

QRB1 on HOLD.
QT1 Forwarded to Envirolab.

SAMPLE RECEIPT ADVICE

CLIENT DETAILS

Client EI AUSTRALIA

Project E25874 10-28 Lawrence St, Freshwater, NS

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity and TDS by Calculation - Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	pH in water	Total Dissolved Solids (TDS) in water	Total Phenolics in Water	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	GWBH2M-1	1	23	1	1	1	9	78	7
002	GWQD1	-	-	-	-	-	9	11	7
003	GWQR1	-	-	-	-	-	9	11	7
004	TS	-	-	-	-	-	-	11	-
005	TB	-	-	-	-	-	-	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

SE281162

CLIENT DETAILS

Client	EI AUSTRALIA	Project	E25874 10-28 Lawrence St, Freshwater, NS

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	Total Cyanide in water by Discrete Analyser	Trace Metals (Dissolved) in Water by ICPMS	Turbidity
001	GWBH2M-1	1	3	1	8	1
002	GWQD1	1	-	-	7	-
003	GWQR1	1	-	-	7	-

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 .

Cc: 1/4/25 1802

Sheet 1 of 1

10-28 lawrence st,
Freshwater, NSW

Project No: E25874

Laboratory:

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

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM ^ /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM ^ /TRH/PAHs	HM ^ /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	Excavated Natural Material (ENM) Suite	Dewatering Suite	pH / pH peroxide	sPOCAS	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	HOLD		TCLP HM ᴮ / PAH
QT1 ①		J	31/03/25	AM	X						X																

Comments

HM ^
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM ᴮ
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 377265
Date Received: 2/4/25
Time Received: 1800
Received By: CN
Temp: [✓ Cool]/Ambient
Cooling: Ice/[✓ Icepack]
Security: [✓ Intact]/Broken/None

LABORATORY TURNAROUND

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

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

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

Sampler's Name (EI): ~~Sharon/Chiro~~
Print: Jordan Goehner-Drewe
Signature:
Date: 1/04/25

Received by (Envirolab):
Print: OWilliams
Signature: O.W
Date: 2/4/25

Report with EI Waste Classification Table ☒

Sampler's Comments:
cc sergio

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

eiaustralia

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

COC June 2021 FORM v.5 - Envirolab

Luong, Thi Song Van (Alexandria)

From: Jordan Goehner-Drewe - EIAustralia <Jordan.Goehner-Drewe@eiaustralia.com.au>
Sent: Tuesday, 1 April 2025 5:24 PM
To: AU.SampleReceipt.Sydney, AU (Sydney); AU.Environmental.Sydney, AU (Sydney)
Cc: Sergio Raposeira - EIAustralia
Subject: [EXTERNAL] Re: E25874 - Freshwater

Hi SGS,

Please forward QT1 to envirolab. Thankyou ①

Kind Regards,

377265
2/4/25
CW

Jordan Goehner-Drewe
Environmental Engineer
0449 149 099
jordan.goehner-drewe@eiaustralia.com.au

From: Jordan Goehner-Drewe - EIAustralia <Jordan.Goehner-Drewe@eiaustralia.com.au>
Sent: Tuesday, April 1, 2025 3:38:31 PM
To: AU.SampleReceipt.Sydney, AU (Sydney) <AU.SampleReceipt.Sydney@sgs.com>; 'AU.Environmental.Sydney@SGS.com' <AU.Environmental.Sydney@SGS.com>
Cc: Sergio Raposeira - EIAustralia <sergio.raposeira@eiaustralia.com.au>
Subject: E25874 - Freshwater

Hi SGS,

Please see attached COC for samples picked up by courier today and the samples on hold (collected by courier on 28/03/25).

Thankyou very much!

Best Regards,

Jordan Goehner-Drewe
Graduate Environmental Engineer
T 02 9516 0722
M 0449 149 099
E jordan.goehner-drewe@eiaustralia.com.au

eiaustralia
Practical Solutions for Built Environments

Sheet 1 of 2

Site: 10-28 Lawrence St, Freshwater, NSW

Project No: E25874

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

	Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM ^A /TRH (including F1, F2, F3, F4)/BTEX/ PAHs/ OCP/OP/PCB/Asbestos	HM ^A /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM ^A /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	~~Asbestos~~ cVOCs	Asbestos Quantification (500ml)	Asbestos 10L field screening	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM^A /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 ^B / PAH
1	EIBH1-0.3-0.4		JZLB	3/03	AM	X				X																				
	EIBH2M_0.1-0.2		↓	27/03	↓	↓																								
2	EIBH2M_0.3-0.4		↓	↓	↓	↓				X					X															
	EIBH2M_0.6-0.7		↓	↓	↓	↓																								
3	EIBH2M_1.0-1.1		↓	↓	↓	↓					X																			
	EIBH2M_1.4-1.5		↓	↓	↓	↓																								
4	EIBH2M_2.0-2.1		↓	↓	↓	↓					X				X															
5	EIBH3_0.3-0.4		↓	31/03	↓	↓				X																				
	EIBH4_0.1-0.15		↓	↓	↓	↓																								
6	EIBH4_0.15-0.2		↓	↓	↓	↓						X																		
7	QD1		J	↓	↓	↓				X																				
8	TS		VC	31/03	AM	X							X																	

Comments

HM ^A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM ^B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH
Total Phenol

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

eiaustralia

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

COC November 2024 FORM v6 - EGS

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

Report with EI Waste Classification Table ☒

Sampler's Name (EI): JGD/MO
Print: Jordan Goehner-Drewe
Signature:
Date: 1/04/25

Received by (SGS):
Print:
Signature:
Date: 01/04/25 @ 2:20

Sampler's Comments: CC. sergio.raposeira@eiaustralia.com.au in results

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

377265
2/4/25
CW

SGS EHS Sydney COC
SE280680

Sheet 2 of 2

Site: 10-28 lawrence st, Freshwater, NSW

Project No: E25874

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

				Sampling		Sample Matrix				Analysis																				
	Sample ID	Laboratory ID	Container Type	Date	Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM^{A} /TRH (including F1, F2, F3, F4)/BTEX/ PAHs/ OCP/OP/PCB/Asbestos	HM^{A} /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM^{A} /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification (500ml)	Asbestos 10L field screening	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM^{A} /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^{B} / PAH
9	TB		VC	31/03	AM	X							X																	
10	QR[illegible]1		SPVC	↓	↓		X					X																		
	QRB1		SPVC	↓	↓		X																							

Comments

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

HM^{B}
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH
Total Phenol

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.

Report with EI Waste Classification Table ☒

Sampler's Name (EI): JGD/MO
Print Jordan Goehner-Drewe
Signature
Date 1/9/2025

Received by (SGS):
Print
Signature S. Subany
Date 01/04/25 @ 2-20

Sampler's Comments:
cc Sergio in results

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

eiaustralia

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

COC November 2024 FORM v.6 - SGS

377265
2/4/25
an

Oc: 9/4/25 1517

Sheet 1 of 1

10-28 lawrence St,
Freshwater, NSW

Project No: E25874

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

Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix				Analysis																		
			Date	Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM ^A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM ^A /TRH/PAHs	HM ^A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	Excavated Natural Material (ENM) Suite	Dewatering Suite	pH / pH peroxide	sPOCAS	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	HOLD		TCLP HM ^B / PAH
① GWQT1		SPVC	9/4/25	AM	~~X~~	X					X																

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

Job No: 377979

Date Received: 10/04/25
Time Received: 1550
Received By: D
Temp: [✓ Cool]/Ambient
Cooling: Ice/[✓ Icepack]
Security: [✓ Intact]/Broken/None

Comments

HM ^A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM ^B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH

LABORATORY TURNAROUND

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

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

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

Sampler's Name (EI): Sh~~[illegible]~~	Received by (Envirolab):
Print Jordan Goettner-Drewe	Print Dani
Signature	Signature
Date 9/4/25	Date 10/04/25 1550

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

Report with EI Waste Classification Table ☐

Sampler's Comments:
cc sergio in results. Thanks.

eiaustralia

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

COC June 2021 FORM v.5 - Envirolab

Sheet _1_ of _1_

Site: 10-28 lawrence st, Freshwater, NSW

Project No: E25874

Laboratory:

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

Sample ID	Laboratory ID	Container Type	Sampling		Sample Matrix				Analysis																				
			Date	Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM ^A /TRH (including F1, F2, F3, F4)/BTEX/ PAHs/ OCP/OP/PCB/Asbestos	HM ^A /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM ^A /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification (500ml)	Asbestos 10L field screening	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM^A /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 ^B / PAH
GWBH2M-1		SPVC	9/04/25	AM		X							X							X									
GWQD1		↓	↓	↓		↓					X																		
GWQR1		↓	↓	↓		↓					X																		
GWQRB1		↓	↓	↓		↓																							
TS		VC	↓	↓		↓						X																	
TB		VC	↓	↓		↓						X																	

ATC #8972
10/4/25

Comments

HM ^A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM ^B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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
PAH
Total Phenol

LABORATORY TURNAROUND

☒ Standard
☐ 24 Hours
☐ 48 Hours
☐ 72 Hours
☐ Other____

Container Type:
J = solvent washed, acid rinsed, Teflon sealed glass jar
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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 ☐

Sampler's Name (EI):	Received by (SGS):
Print Jordan Goehner-Drewe	Print
Signature	Signature
Date 9/4/25	Date

Sampler's Comments:
Please QT1 ① to envirolab.
cc sergio results thanks.

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

eiaustralia
Contamination | Remediation | Geotechnical

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

COC June 2021 FORM v.5 - SGS

#377979
10/04/25

Yin, Emily (Alexandria)

From: Jordan Goehner-Drewe - EIAustralia <Jordan.Goehner-Drewe@eiaustralia.com.au>
Sent: Wednesday, 9 April 2025 3:16 PM
To: AU.SampleReceipt.Sydney, AU (Sydney); AU.Environmental.Sydney, AU (Sydney)
Cc: Sergio Raposeira - EIAustralia
Subject: [EXTERNAL] E25874 - Freshwater
Attachments: 09042025151602-0001.pdf

Hi SGS,

Please see attached coc for samples picked up today from the office. Please forward QT1 to Envirolab. Thankyou!

Best Regards,

Jordan Goehner-Drewe
Graduate Environmental Engineer
T 02 9516 0722
M 0449 149 099
E jordan.goehner-drewe@eiaustralia.com.au
Suite 6.01, 55 Miller Street
Pyrmont, NSW 2009
www.eiaustralia.com.au

eiaustralia
Practical Solutions for Built Environments

Environmental | Geotechnical | Structural | Civil | Hazardous Materials

EI Australia is a proud member of the Australian Contaminated Land Consultants Association and the Australian Geomechanics Society.

#377979
10/04/25

Appendix H – Laboratory Analytical Reports and DQOs

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Mathias Oros	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	mathias.oros@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	**E25874 10-28 Lawrence st, Freshwater N**	SGS Reference	**SE280680 R0**
Order Number	**E25874**	Date Received	1/4/2025
Samples	10	Date Reported	8/4/2025

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 Ravee Sivasubramaniam

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Shane

Shane MCDERMOTT
Laboratory Manager

Teresa NGUYEN
Organic Chemist

VOC's in Soil [AN433] Tested: 2/4/2025

			EIBH1_0.3-0.4	EIBH2M_0.3-0.4	EIBH2M_1.0-1.1	EIBH2M_2.0-2.1	EIBH3_0.3-0.4
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			31/3/2025	27/3/2025	27/3/2025	27/3/2025	31/3/2025
PARAMETER	**UOM**	**LOR**	**SE280680.001**	**SE280680.002**	**SE280680.003**	**SE280680.004**	**SE280680.005**
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
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	<1	-	<1	-
Chloromethane	mg/kg	1	-	<1	-	<1	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromomethane	mg/kg	1	-	<1	-	<1	-
Chloroethane	mg/kg	1	-	<1	-	<1	-
Trichlorofluoromethane	mg/kg	1	-	<1	-	<1	-
Acetone (2-propanone)	mg/kg	10	-	<10	-	<10	-
Iodomethane	mg/kg	5	-	<5	-	<5	-
1,1-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
Acrylonitrile	mg/kg	0.1	-	<0.1	-	<0.1	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	<0.5	-	<0.5	-
Allyl chloride	mg/kg	0.1	-	<0.1	-	<0.1	-
Carbon disulfide	mg/kg	0.5	-	<0.5	-	<0.5	-
trans-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Vinyl acetate*	mg/kg	10	-	<10	-	<10	-
cis-1,2-dichloroethene	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromochloromethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Chloroform (THM)	mg/kg	0.1	-	<0.1	-	<0.1	-
2,2-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,1-trichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
Carbon tetrachloride	mg/kg	0.1	-	<0.1	-	<0.1	-
Dibromomethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
Trichloroethene (Trichloroethylene,TCE)	mg/kg	0.1	-	<0.1	-	<0.1	-
2-nitropropane	mg/kg	10	-	<10	-	<10	-
Bromodichloromethane (THM)	mg/kg	0.1	-	<0.1	-	<0.1	-
MIBK (4-methyl-2-pentanone)	mg/kg	1	-	<1	-	<1	-
cis-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,3-dichloropropene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,2-trichloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3-dichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
Dibromochloromethane (THM)	mg/kg	0.1	-	<0.1	-	<0.1	-
2-hexanone (MBK)	mg/kg	5	-	<5	-	<5	-
1,2-dibromoethane (EDB)	mg/kg	0.1	-	<0.1	-	<0.1	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
Chlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromoform (THM)	mg/kg	0.1	-	<0.1	-	<0.1	-
Styrene (Vinyl benzene)	mg/kg	0.1	-	<0.1	-	<0.1	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,3-trichloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
trans-1,4-dichloro-2-butene	mg/kg	1	-	<1	-	<1	-
Isopropylbenzene (Cumene)	mg/kg	0.1	-	<0.1	-	<0.1	-
Bromobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-

VOC's in Soil [AN433] Tested: 2/4/2025 (continued)

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH2M_1.0-1.1 SOIL - 27/3/2025 SE280680.003	EIBH2M_2.0-2.1 SOIL - 27/3/2025 SE280680.004	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005
n-propylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
2-chlorotoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
4-chlorotoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3,5-trimethylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
tert-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,4-trimethylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
sec-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,3-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,4-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
p-isopropyltoluene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
n-butylbenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,4-trichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Hexachlorobutadiene	mg/kg	0.1	-	<0.1	-	<0.1	-
1,2,3-trichlorobenzene	mg/kg	0.1	-	<0.1	-	<0.1	-
Total VOC*	mg/kg	24	-	<24	-	<24	-
Total Volatile Chlorinated Hydrocarbons*	mg/kg	3	-	<3.0	-	<3.0	-
Total Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	-	<1.8	-	<1.8	-
Total Other Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	-	<1.8	-	<1.8	-
Total Chlorinated Hydrocarbons - subset A*	mg/kg	3	-	<3.0	-	<3.0	-
MEK (2-butanone)	mg/kg	10	-	<10	-	<10	-

VOC's in Soil [AN433] Tested: 2/4/2025 (continued)

			EIBH4_0.15-0.2	QD1	TS	TB
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			31/3/2025	31/3/2025	31/3/2025	31/3/2025
PARAMETER	**UOM**	**LOR**	**SE280680.006**	**SE280680.007**	**SE280680.008**	**SE280680.009**
Benzene	mg/kg	0.1	<0.1	<0.1	[104%]	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	[103%]	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	[102%]	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	[100%]	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	[102%]	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	-	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	-	-	-
Chloromethane	mg/kg	1	-	-	-	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	-	-	-
Bromomethane	mg/kg	1	-	-	-	-
Chloroethane	mg/kg	1	-	-	-	-
Trichlorofluoromethane	mg/kg	1	-	-	-	-
Acetone (2-propanone)	mg/kg	10	-	-	-	-
Iodomethane	mg/kg	5	-	-	-	-
1,1-dichloroethene	mg/kg	0.1	-	-	-	-
Acrylonitrile	mg/kg	0.1	-	-	-	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	-	-	-
Allyl chloride	mg/kg	0.1	-	-	-	-
Carbon disulfide	mg/kg	0.5	-	-	-	-
trans-1,2-dichloroethene	mg/kg	0.1	-	-	-	-
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	-	-	-	-
1,1-dichloroethane	mg/kg	0.1	-	-	-	-
Vinyl acetate*	mg/kg	10	-	-	-	-
cis-1,2-dichloroethene	mg/kg	0.1	-	-	-	-
Bromochloromethane	mg/kg	0.1	-	-	-	-
Chloroform (THM)	mg/kg	0.1	-	-	-	-
2,2-dichloropropane	mg/kg	0.1	-	-	-	-
1,2-dichloroethane	mg/kg	0.1	-	-	-	-
1,1,1-trichloroethane	mg/kg	0.1	-	-	-	-
1,1-dichloropropene	mg/kg	0.1	-	-	-	-
Carbon tetrachloride	mg/kg	0.1	-	-	-	-
Dibromomethane	mg/kg	0.1	-	-	-	-
1,2-dichloropropane	mg/kg	0.1	-	-	-	-
Trichloroethene (Trichloroethylene,TCE)	mg/kg	0.1	-	-	-	-
2-nitropropane	mg/kg	10	-	-	-	-
Bromodichloromethane (THM)	mg/kg	0.1	-	-	-	-
MIBK (4-methyl-2-pentanone)	mg/kg	1	-	-	-	-
cis-1,3-dichloropropene	mg/kg	0.1	-	-	-	-
trans-1,3-dichloropropene	mg/kg	0.1	-	-	-	-
1,1,2-trichloroethane	mg/kg	0.1	-	-	-	-
1,3-dichloropropane	mg/kg	0.1	-	-	-	-
Dibromochloromethane (THM)	mg/kg	0.1	-	-	-	-
2-hexanone (MBK)	mg/kg	5	-	-	-	-
1,2-dibromoethane (EDB)	mg/kg	0.1	-	-	-	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	-	-	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	-	-	-
Chlorobenzene	mg/kg	0.1	-	-	-	-
Bromoform (THM)	mg/kg	0.1	-	-	-	-
Styrene (Vinyl benzene)	mg/kg	0.1	-	-	-	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	-	-	-
1,2,3-trichloropropane	mg/kg	0.1	-	-	-	-
trans-1,4-dichloro-2-butene	mg/kg	1	-	-	-	-
Isopropylbenzene (Cumene)	mg/kg	0.1	-	-	-	-
Bromobenzene	mg/kg	0.1	-	-	-	-

VOC's in Soil [AN433] Tested: 2/4/2025 (continued)

PARAMETER	UOM	LOR	EIBH4_0.15-0.2 SOIL - 31/3/2025 SE280680.006	QD1 SOIL - 31/3/2025 SE280680.007	TS SOIL - 31/3/2025 SE280680.008	TB SOIL - 31/3/2025 SE280680.009
n-propylbenzene	mg/kg	0.1	-	-	-	-
2-chlorotoluene	mg/kg	0.1	-	-	-	-
4-chlorotoluene	mg/kg	0.1	-	-	-	-
1,3,5-trimethylbenzene	mg/kg	0.1	-	-	-	-
tert-butylbenzene	mg/kg	0.1	-	-	-	-
1,2,4-trimethylbenzene	mg/kg	0.1	-	-	-	-
sec-butylbenzene	mg/kg	0.1	-	-	-	-
1,3-dichlorobenzene	mg/kg	0.1	-	-	-	-
1,4-dichlorobenzene	mg/kg	0.1	-	-	-	-
p-isopropyltoluene	mg/kg	0.1	-	-	-	-
1,2-dichlorobenzene	mg/kg	0.1	-	-	-	-
n-butylbenzene	mg/kg	0.1	-	-	-	-
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	-	-	-
1,2,4-trichlorobenzene	mg/kg	0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	-	-	-	-
1,2,3-trichlorobenzene	mg/kg	0.1	-	-	-	-
Total VOC*	mg/kg	24	-	-	-	-
Total Volatile Chlorinated Hydrocarbons*	mg/kg	3	-	-	-	-
Total Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	-	-	-	-
Total Other Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	-	-	-	-
Total Chlorinated Hydrocarbons - subset A*	mg/kg	3	-	-	-	-
MEK (2-butanone)	mg/kg	10	-	-	-	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH2M_1.0-1.1 SOIL - 27/3/2025 SE280680.003	EIBH2M_2.0-2.1 SOIL - 27/3/2025 SE280680.004	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005
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	EIBH4_0.15-0.2 SOIL - 31/3/2025 SE280680.006	QD1 SOIL - 31/3/2025 SE280680.007
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH2M_1.0-1.1 SOIL - 27/3/2025 SE280680.003	EIBH2M_2.0-2.1 SOIL - 27/3/2025 SE280680.004	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005
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	<45	<45	**46**
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	EIBH4_0.15-0.2 SOIL - 31/3/2025 SE280680.006	QD1 SOIL - 31/3/2025 SE280680.007
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH2M_1.0-1.1 SOIL - 27/3/2025 SE280680.003	EIBH2M_2.0-2.1 SOIL - 27/3/2025 SE280680.004	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005
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	0.4	<0.1	<0.1	<0.1	0.5
Pyrene	mg/kg	0.1	0.4	<0.1	<0.1	<0.1	0.5
Benzo(a)anthracene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	0.3
Chrysene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	0.4
Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	0.4
Benzo(k)fluoranthene	mg/kg	0.1	0.3	<0.1	<0.1	<0.1	0.5
Benzo(a)pyrene	mg/kg	0.1	0.3	<0.1	<0.1	<0.1	0.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.3	<0.1	<0.1	<0.1	0.4
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	0.3	<0.1	<0.1	<0.1	0.4
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	0.4	<0.2	<0.2	<0.2	0.7
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	0.5	<0.3	<0.3	<0.3	0.8
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.5	<0.2	<0.2	<0.2	0.8
Total PAH (18)	mg/kg	0.8	2.7	<0.8	<0.8	<0.8	4.1
Total PAH (NEPM/WHO 16)	mg/kg	0.8	2.7	<0.8	<0.8	<0.8	4.1

PARAMETER	UOM	LOR	QD1 SOIL - 31/3/2025 SE280680.007
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	0.4
Pyrene	mg/kg	0.1	0.4
Benzo(a)anthracene	mg/kg	0.1	0.2
Chrysene	mg/kg	0.1	0.2
Benzo(b&j)fluoranthene	mg/kg	0.1	0.2
Benzo(k)fluoranthene	mg/kg	0.1	0.2
Benzo(a)pyrene	mg/kg	0.1	0.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	0.2
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	0.4
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	0.5
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.4
Total PAH (18)	mg/kg	0.8	2.5
Total PAH (NEPM/WHO 16)	mg/kg	0.8	2.5

OP Pesticides in Soil [AN420] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005	QD1 SOIL - 31/3/2025 SE280680.007
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

OC Pesticides in Soil [AN420] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005	QD1 SOIL - 31/3/2025 SE280680.007
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	1.9	<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	0.9	<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	2.8	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	2.8	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

PCBs in Soil [AN420] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005	QD1 SOIL - 31/3/2025 SE280680.007
Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 2/4/2025

			EIBH1_0.3-0.4	EIBH2M_0.3-0.4	EIBH2M_1.0-1.1	EIBH2M_2.0-2.1	EIBH3_0.3-0.4
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			31/3/2025	27/3/2025	27/3/2025	27/3/2025	31/3/2025
PARAMETER	**UOM**	**LOR**	**SE280680.001**	**SE280680.002**	**SE280680.003**	**SE280680.004**	**SE280680.005**
Arsenic, As	mg/kg	1	1	<1	<1	<1	12
Cadmium, Cd	mg/kg	0.3	0.6	<0.3	<0.3	<0.3	2.9
Chromium, Cr	mg/kg	0.5	7.3	0.6	1.1	2.6	19
Copper, Cu	mg/kg	0.5	23	4.8	29	<0.5	110
Lead, Pb	mg/kg	1	84	32	21	3	1400
Nickel, Ni	mg/kg	0.5	2.7	<0.5	5.6	<0.5	6.4
Zinc, Zn	mg/kg	2	210	24	37	<2.0	1700

			EIBH4_0.15-0.2	QD1
			SOIL	SOIL
			-	-
			31/3/2025	31/3/2025
PARAMETER	**UOM**	**LOR**	**SE280680.006**	**SE280680.007**
Arsenic, As	mg/kg	1	1	1
Cadmium, Cd	mg/kg	0.3	<0.3	0.5
Chromium, Cr	mg/kg	0.5	5.9	7.7
Copper, Cu	mg/kg	0.5	6.1	24
Lead, Pb	mg/kg	1	31	87
Nickel, Ni	mg/kg	0.5	2.9	4.0
Zinc, Zn	mg/kg	2	64	190

Mercury in Soil [AN312] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH2M_1.0-1.1 SOIL - 27/3/2025 SE280680.003	EIBH2M_2.0-2.1 SOIL - 27/3/2025 SE280680.004	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005
Mercury	mg/kg	0.05	0.07	<0.05	<0.05	<0.05	0.28

PARAMETER	UOM	LOR	EIBH4_0.15-0.2 SOIL - 31/3/2025 SE280680.006	QD1 SOIL - 31/3/2025 SE280680.007
Mercury	mg/kg	0.05	<0.05	0.07

Moisture Content [AN002] Tested: 2/4/2025

PARAMETER	UOM	LOR	EIBH1_0.3-0.4 SOIL - 31/3/2025 SE280680.001	EIBH2M_0.3-0.4 SOIL - 27/3/2025 SE280680.002	EIBH2M_1.0-1.1 SOIL - 27/3/2025 SE280680.003	EIBH2M_2.0-2.1 SOIL - 27/3/2025 SE280680.004	EIBH3_0.3-0.4 SOIL - 31/3/2025 SE280680.005
% Moisture	%w/w	1	13.2	7.7	20.0	6.2	15.9

PARAMETER	UOM	LOR	EIBH4_0.15-0.2 SOIL - 31/3/2025 SE280680.006	QD1 SOIL - 31/3/2025 SE280680.007	TB SOIL - 31/3/2025 SE280680.009
% Moisture	%w/w	1	13.3	14.4	<1.0

Fibre Identification in soil [AS4964/AN602] Tested: 3/4/2025

PARAMETER	UOM	LOR	**EIBH1_0.3-0.4** SOIL - 31/3/2025 **SE280680.001**	**EIBH2M_0.3-0.4** SOIL - 27/3/2025 **SE280680.002**	**EIBH3_0.3-0.4** SOIL - 31/3/2025 **SE280680.005**
Date Analysed*	No unit	-	07/04/2025 00:00	07/04/2025 00:00	07/04/2025 00:00
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01

VOCs in Water [AN433] Tested: 4/4/2025

			QR1 WATER - 31/3/2025
PARAMETER	**UOM**	**LOR**	**SE280680.010**
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

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 4/4/2025

PARAMETER	UOM	LOR	QR1 WATER - 31/3/2025 SE280680.010
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 3/4/2025

PARAMETER	UOM	LOR	QR1 WATER - 31/3/2025 SE280680.010
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

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 4/4/2025

PARAMETER	UOM	LOR	QR1 WATER - 31/3/2025 SE280680.010
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

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 3/4/2025

			QR1 WATER - 31/3/2025
PARAMETER	**UOM**	**LOR**	**SE280680.010**
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 unequivocably 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 ± 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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STATEMENT OF QA/QC PERFORMANCE

SE280680 R0

CLIENT DETAILS

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Project	**E25874 10-28 Lawrence st, Freshwater N**
Order Number	**E25874**
Samples	10

LABORATORY DETAILS

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SGS Reference	**SE280680 R0**
Date Received	01 Apr 2025
Date Reported	08 Apr 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	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	1 item

SAMPLE SUMMARY

Sample counts by matrix	9 Soil,1 Water	Type of documentation received	COC
Date documentation received	1/4/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	9.3°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		

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
EIBH1_0.3-0.4	SE280680.001	LB343097	31 Mar 2025	01 Apr 2025	31 Mar 2026	03 Apr 2025	31 Mar 2026	08 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343097	27 Mar 2025	01 Apr 2025	27 Mar 2026	03 Apr 2025	27 Mar 2026	08 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343097	31 Mar 2025	01 Apr 2025	31 Mar 2026	03 Apr 2025	31 Mar 2026	08 Apr 2025
QD1	SE280680.007	LB343097	31 Mar 2025	01 Apr 2025	31 Mar 2026	03 Apr 2025	31 Mar 2026	08 Apr 2025

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
QR1	SE280680.010	LB343053	31 Mar 2025	01 Apr 2025	28 Apr 2025	03 Apr 2025	28 Apr 2025	07 Apr 2025

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
EIBH1_0.3-0.4	SE280680.001	LB343014	31 Mar 2025	01 Apr 2025	28 Apr 2025	02 Apr 2025	28 Apr 2025	07 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343014	27 Mar 2025	01 Apr 2025	24 Apr 2025	02 Apr 2025	24 Apr 2025	07 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343014	27 Mar 2025	01 Apr 2025	24 Apr 2025	02 Apr 2025	24 Apr 2025	07 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343014	27 Mar 2025	01 Apr 2025	24 Apr 2025	02 Apr 2025	24 Apr 2025	07 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343014	31 Mar 2025	01 Apr 2025	28 Apr 2025	02 Apr 2025	28 Apr 2025	07 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343014	31 Mar 2025	01 Apr 2025	28 Apr 2025	02 Apr 2025	28 Apr 2025	07 Apr 2025
QD1	SE280680.007	LB343014	31 Mar 2025	01 Apr 2025	28 Apr 2025	02 Apr 2025	28 Apr 2025	07 Apr 2025

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
EIBH1_0.3-0.4	SE280680.001	LB343006	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343006	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343006	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343006	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343006	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343006	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025
QD1	SE280680.007	LB343006	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025
TB	SE280680.009	LB343006	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	07 Apr 2025	04 Apr 2025

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
EIBH1_0.3-0.4	SE280680.001	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
QD1	SE280680.007	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
EIBH1_0.3-0.4	SE280680.001	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
QD1	SE280680.007	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025

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
EIBH1_0.3-0.4	SE280680.001	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
QD1	SE280680.007	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025

PCBs in Soil

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

Sample Name	Sample No.	QC Ref

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

PCBs in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
EIBH1_0.3-0.4	SE280680.001	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025
QD1	SE280680.007	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	08 Apr 2025

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
EIBH1_0.3-0.4	SE280680.001	LB343008	31 Mar 2025	01 Apr 2025	27 Sep 2025	02 Apr 2025	27 Sep 2025	07 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343008	27 Mar 2025	01 Apr 2025	23 Sep 2025	02 Apr 2025	23 Sep 2025	07 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343008	27 Mar 2025	01 Apr 2025	23 Sep 2025	02 Apr 2025	23 Sep 2025	07 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343008	27 Mar 2025	01 Apr 2025	23 Sep 2025	02 Apr 2025	23 Sep 2025	07 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343008	31 Mar 2025	01 Apr 2025	27 Sep 2025	02 Apr 2025	27 Sep 2025	07 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343008	31 Mar 2025	01 Apr 2025	27 Sep 2025	02 Apr 2025	27 Sep 2025	07 Apr 2025
QD1	SE280680.007	LB343008	31 Mar 2025	01 Apr 2025	27 Sep 2025	02 Apr 2025	27 Sep 2025	07 Apr 2025

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE280680.010	LB343209	31 Mar 2025	01 Apr 2025	27 Sep 2025	04 Apr 2025	27 Sep 2025	07 Apr 2025

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
EIBH1_0.3-0.4	SE280680.001	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	07 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	07 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	07 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343001	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	12 May 2025	07 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	07 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	07 Apr 2025
QD1	SE280680.007	LB343001	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	12 May 2025	07 Apr 2025

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE280680.010	LB343028	31 Mar 2025	01 Apr 2025	07 Apr 2025	03 Apr 2025	13 May 2025	07 Apr 2025

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
EIBH1_0.3-0.4	SE280680.001	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343004	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	10 Apr 2025	07 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343004	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	10 Apr 2025	07 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343004	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	10 Apr 2025	07 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
QD1	SE280680.007	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
TS	SE280680.008	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
TB	SE280680.009	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE280680.010	LB343241	31 Mar 2025	01 Apr 2025	14 Apr 2025	04 Apr 2025	14 Apr 2025	07 Apr 2025

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
EIBH1_0.3-0.4	SE280680.001	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
EIBH2M_0.3-0.4	SE280680.002	LB343004	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	10 Apr 2025	07 Apr 2025
EIBH2M_1.0-1.1	SE280680.003	LB343004	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	10 Apr 2025	07 Apr 2025
EIBH2M_2.0-2.1	SE280680.004	LB343004	27 Mar 2025	01 Apr 2025	10 Apr 2025	02 Apr 2025	10 Apr 2025	07 Apr 2025
EIBH3_0.3-0.4	SE280680.005	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
EIBH4_0.15-0.2	SE280680.006	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QD1	SE280680.007	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
TS	SE280680.008	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025
TB	SE280680.009	LB343004	31 Mar 2025	01 Apr 2025	14 Apr 2025	02 Apr 2025	14 Apr 2025	07 Apr 2025

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE280680.010	LB343241	31 Mar 2025	01 Apr 2025	14 Apr 2025	04 Apr 2025	14 Apr 2025	07 Apr 2025

SURROGATES

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	99
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	94
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	95
	QD1	SE280680.007	%	60 - 130%	92

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	101
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	96
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	97
	QD1	SE280680.007	%	60 - 130%	93
d14-p-terphenyl (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	96
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	92
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	90
	QD1	SE280680.007	%	60 - 130%	87

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	70 - 130%	101
	EIBH2M_0.3-0.4	SE280680.002	%	70 - 130%	96
	EIBH2M_1.0-1.1	SE280680.003	%	70 - 130%	100
	EIBH2M_2.0-2.1	SE280680.004	%	70 - 130%	100
	EIBH3_0.3-0.4	SE280680.005	%	70 - 130%	97
	QD1	SE280680.007	%	70 - 130%	93
d14-p-terphenyl (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	70 - 130%	96
	EIBH2M_0.3-0.4	SE280680.002	%	70 - 130%	92
	EIBH2M_1.0-1.1	SE280680.003	%	70 - 130%	97
	EIBH2M_2.0-2.1	SE280680.004	%	70 - 130%	96
	EIBH3_0.3-0.4	SE280680.005	%	70 - 130%	90
	QD1	SE280680.007	%	70 - 130%	87
d5-nitrobenzene (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	70 - 130%	97
	EIBH2M_0.3-0.4	SE280680.002	%	70 - 130%	93
	EIBH2M_1.0-1.1	SE280680.003	%	70 - 130%	95
	EIBH2M_2.0-2.1	SE280680.004	%	70 - 130%	94
	EIBH3_0.3-0.4	SE280680.005	%	70 - 130%	91
	QD1	SE280680.007	%	70 - 130%	93

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	99
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	94
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	95
	QD1	SE280680.007	%	60 - 130%	92

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	75
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	77
	EIBH2M_1.0-1.1	SE280680.003	%	60 - 130%	76
	EIBH2M_2.0-2.1	SE280680.004	%	60 - 130%	78
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	78
	EIBH4_0.15-0.2	SE280680.006	%	60 - 130%	76
	QD1	SE280680.007	%	60 - 130%	76
	TS	SE280680.008	%	60 - 130%	73
	TB	SE280680.009	%	60 - 130%	81
d4-1,2-dichloroethane (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	69
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	72
	EIBH2M_1.0-1.1	SE280680.003	%	60 - 130%	73
	EIBH2M_2.0-2.1	SE280680.004	%	60 - 130%	62
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	75
	EIBH4_0.15-0.2	SE280680.006	%	60 - 130%	75
	QD1	SE280680.007	%	60 - 130%	73
	TS	SE280680.008	%	60 - 130%	89

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TB	SE280680.009	%	60 - 130%	78
d8-toluene (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	73
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	72
	EIBH2M_1.0-1.1	SE280680.003	%	60 - 130%	72
	EIBH2M_2.0-2.1	SE280680.004	%	60 - 130%	77
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	74
	EIBH4_0.15-0.2	SE280680.006	%	60 - 130%	76
	QD1	SE280680.007	%	60 - 130%	72
	TS	SE280680.008	%	60 - 130%	88
	TB	SE280680.009	%	60 - 130%	79

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE280680.010	%	40 - 130%	89
d4-1,2-dichloroethane (Surrogate)	QR1	SE280680.010	%	40 - 130%	86
d8-toluene (Surrogate)	QR1	SE280680.010	%	40 - 130%	87

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	75
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	77
	EIBH2M_1.0-1.1	SE280680.003	%	60 - 130%	76
	EIBH2M_2.0-2.1	SE280680.004	%	60 - 130%	78
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	78
	EIBH4_0.15-0.2	SE280680.006	%	60 - 130%	76
	QD1	SE280680.007	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	69
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	72
	EIBH2M_1.0-1.1	SE280680.003	%	60 - 130%	73
	EIBH2M_2.0-2.1	SE280680.004	%	60 - 130%	62
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	75
	EIBH4_0.15-0.2	SE280680.006	%	60 - 130%	75
	QD1	SE280680.007	%	60 - 130%	73
d8-toluene (Surrogate)	EIBH1_0.3-0.4	SE280680.001	%	60 - 130%	73
	EIBH2M_0.3-0.4	SE280680.002	%	60 - 130%	72
	EIBH2M_1.0-1.1	SE280680.003	%	60 - 130%	72
	EIBH2M_2.0-2.1	SE280680.004	%	60 - 130%	77
	EIBH3_0.3-0.4	SE280680.005	%	60 - 130%	74
	EIBH4_0.15-0.2	SE280680.006	%	60 - 130%	76
	QD1	SE280680.007	%	60 - 130%	72

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE280680.010	%	40 - 130%	89
d4-1,2-dichloroethane (Surrogate)	QR1	SE280680.010	%	60 - 130%	86
d8-toluene (Surrogate)	QR1	SE280680.010	%	40 - 130%	87

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(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB343053.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB343014.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB343001.001		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)	%	-	99

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB343001.001		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
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	101
		d14-p-terphenyl (Surrogate)	%	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB343001.001	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

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
LB343001.001		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)	%	-	99
		2-fluorobiphenyl (Surrogate)	%	-	101
		d14-p-terphenyl (Surrogate)	%	-	99

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB343001.001		Arochlor 1016	mg/kg	0.1	<0.1
		Arochlor 1221	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)	%	-	99

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

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

Sample Number	Parameter	Units	LOR	Result
LB343008.001	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

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result
LB343209.001	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 Soil

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

Sample Number	Parameter	Units	LOR	Result
LB343001.001	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
LB343028.001	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

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB343004.001	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1
		1,2-dichloropropane	mg/kg	0.1	<0.1
		cis-1,3-dichloropropene	mg/kg	0.1	<0.1
		trans-1,3-dichloropropene	mg/kg	0.1	<0.1
		1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1
		Chloromethane	mg/kg	1	<1
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1
		Bromomethane	mg/kg	1	<1
		Chloroethane	mg/kg	1	<1
		Trichlorofluoromethane	mg/kg	1	<1
		1,1-dichloroethene	mg/kg	0.1	<0.1
		Iodomethane	mg/kg	5	<5
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5
		Allyl chloride	mg/kg	0.1	<0.1
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1
		1,1-dichloroethane	mg/kg	0.1	<0.1
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1
		Bromochloromethane	mg/kg	0.1	<0.1
		1,2-dichloroethane	mg/kg	0.1	<0.1
		1,1,1-trichloroethane	mg/kg	0.1	<0.1
		1,1-dichloropropene	mg/kg	0.1	<0.1
		Carbon tetrachloride	mg/kg	0.1	<0.1
		Dibromomethane	mg/kg	0.1	<0.1
		Trichloroethene (Trichloroethylene,TCE)	mg/kg	0.1	<0.1
		1,1,2-trichloroethane	mg/kg	0.1	<0.1
		1,3-dichloropropane	mg/kg	0.1	<0.1
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1
		1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1
		1,2,3-trichloropropane	mg/kg	0.1	<0.1
		trans-1,4-dichloro-2-butene	mg/kg	1	<1
		1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1
		Hexachlorobutadiene	mg/kg	0.1	<0.1
	Halogenated Aromatics	Chlorobenzene	mg/kg	0.1	<0.1
		Bromobenzene	mg/kg	0.1	<0.1
		2-chlorotoluene	mg/kg	0.1	<0.1
		4-chlorotoluene	mg/kg	0.1	<0.1
		1,3-dichlorobenzene	mg/kg	0.1	<0.1
		1,4-dichlorobenzene	mg/kg	0.1	<0.1
		1,2-dichlorobenzene	mg/kg	0.1	<0.1
		1,2,4-trichlorobenzene	mg/kg	0.1	<0.1
		1,2,3-trichlorobenzene	mg/kg	0.1	<0.1
	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
		Styrene (Vinyl benzene)	mg/kg	0.1	<0.1
		o-xylene	mg/kg	0.1	<0.1
		Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1
		n-propylbenzene	mg/kg	0.1	<0.1
		1,3,5-trimethylbenzene	mg/kg	0.1	<0.1
		tert-butylbenzene	mg/kg	0.1	<0.1
		1,2,4-trimethylbenzene	mg/kg	0.1	<0.1
		sec-butylbenzene	mg/kg	0.1	<0.1
		p-isopropyltoluene	mg/kg	0.1	<0.1
		n-butylbenzene	mg/kg	0.1	<0.1
	Nitrogenous Compounds	Acrylonitrile	mg/kg	0.1	<0.1
		2-nitropropane	mg/kg	10	<10
	Oxygenated Compounds	Acetone (2-propanone)	mg/kg	10	<10
		MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB343004.001	Oxygenated Compounds	Vinyl acetate*	mg/kg	10	<10
		MIBK (4-methyl-2-pentanone)	mg/kg	1	<1
		2-hexanone (MBK)	mg/kg	5	<5
	Polycyclic VOCs	Naphthalene (VOC)*	mg/kg	0.1	<0.1
	Sulphonated	Carbon disulfide	mg/kg	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	73
		d8-toluene (Surrogate)	%	-	73
		Bromofluorobenzene (Surrogate)	%	-	81
	Totals	Total Other Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	<1.8
		Total Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	<1.8
		Total BTEX*	mg/kg	0.6	<0.6
	Trihalomethanes	Chloroform (THM)	mg/kg	0.1	<0.1
		Bromodichloromethane (THM)	mg/kg	0.1	<0.1
		Dibromochloromethane (THM)	mg/kg	0.1	<0.1
		Bromoform (THM)	mg/kg	0.1	<0.1

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB343241.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)*	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	90
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	95

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB343004.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	73

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB343241.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	90
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	95

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280732.002	LB343053.014	Mercury	μg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280680.001	LB343014.014	Mercury	mg/kg	0.05	0.07	0.07	102	6
SE280680.007	LB343014.021	Mercury	mg/kg	0.05	0.07	0.08	98	10

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280680.001	LB343006.011	% Moisture	%w/w	1	13.2	13.6	37	3
SE280680.007	LB343006.018	% Moisture	%w/w	1	14.4	14.4	37	0

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280668.003	LB343001.024		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	-	0.50	0.48	30	5
SE280680.007	LB343001.025		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

DUPLICATES

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280680.007	LB343001.025		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	-	0.46	0.47	30	3

OP Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280668.003	LB343001.024		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	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	7
SE280680.007	LB343001.025		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	-	0.4	0.4	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280668.003	LB343001.024		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	0.2	86	43
			Pyrene	mg/kg	0.1	0.1	0.2	85	43
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.1	119	31
			Chrysene	mg/kg	0.1	0.1	0.2	107	36
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	0.2	105	36
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	0.2	100	46
			Benzo(a)pyrene	mg/kg	0.1	0.1	0.2	89	46
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.2	101	47
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280668.003	LB343001.024		Benzo(ghi)perylene	mg/kg	0.1	0.1	0.2	101	43
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	0.3	100	32
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.2	0.3	83	38
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	0.4	102	23
			Total PAH (18)	mg/kg	0.8	1.0	1.6	38	51 ②
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	7
SE280680.007	LB343001.025		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.1	0.2	84	49
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.4	0.5	52	28
			Pyrene	mg/kg	0.1	0.4	0.5	53	17
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.2	80	30
			Chrysene	mg/kg	0.1	0.2	0.3	72	23
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.2	73	12
			Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.3	71	20
			Benzo(a)pyrene	mg/kg	0.1	0.3	0.3	64	16
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	0.2	72	8
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.2	0.2	75	2
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0.4	0.4	61	16
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.4	0.5	55	14
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.5	0.5	71	13
			Total PAH (18)	mg/kg	0.8	2.5	3.0	34	20
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	1
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280668.003	LB343001.024		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200	0
			Arochlor 1221	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	-	0.50	0.48	30	5

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

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280680.001	LB343008.014		Arsenic, As	mg/kg	1	1	1	111	3
			Cadmium, Cd	mg/kg	0.3	0.6	0.5	81	15
			Chromium, Cr	mg/kg	0.5	7.3	10	36	35
			Copper, Cu	mg/kg	0.5	23	26	32	12
			Nickel, Ni	mg/kg	0.5	2.7	3.2	47	16
			Lead, Pb	mg/kg	1	84	87	31	3
			Zinc, Zn	mg/kg	2	210	170	31	18
SE280680.007	LB343008.021		Arsenic, As	mg/kg	1	1	1	100	7
			Cadmium, Cd	mg/kg	0.3	0.5	0.4	103	22
			Chromium, Cr	mg/kg	0.5	7.7	9.9	36	24
			Copper, Cu	mg/kg	0.5	24	21	32	11
			Nickel, Ni	mg/kg	0.5	4.0	2.9	45	34
			Lead, Pb	mg/kg	1	87	81	31	7
			Zinc, Zn	mg/kg	2	190	240	31	23

DUPLICATES

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280718.003	LB343209.014		Lead	μg/L	1	0.626	<1	175	0
SE280872.002	LB343209.023		Arsenic	μg/L	1	<1	<1	192	0
			Cadmium	μg/L	0.1	<0.1	<0.1	200	0
			Chromium	μg/L	1	2	2	68	0
			Copper	μg/L	1	4	4	39	1
			Lead	μg/L	1	<1	<1	200	0
			Nickel	μg/L	1	<1	<1	133	0
			Zinc	μg/L	5	14	14	51	4

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280668.003	LB343001.024		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	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
SE280680.007	LB343001.022		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

TRH (Total Recoverable Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280637.001	LB343028.028		TRH C10-C14	μg/L	50	<50	<50	200	0
			TRH C15-C28	μg/L	200	1100	1100	49	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	1200	1200	57	0
		TRH F Bands	TRH >C10-C16	μg/L	60	<60	<60	155	0
			TRH >C10-C16 - Naphthalene (F2)	μg/L	60	<60	<60	155	0
			TRH >C16-C34 (F3)	μg/L	500	1100	1100	74	2
			TRH >C34-C40 (F4)	μg/L	500	<500	<500	200	0
SE280774.001	LB343028.027		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

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280680.001	LB343004.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.9	7.1	50	3

DUPLICATES

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280680.001	LB343004.014	Surrogates	d8-toluene (Surrogate)	mg/kg	-	7.3	7.3	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.5	8.6	50	14
		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
SE280680.004	LB343004.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.2	7.6	50	20
			d8-toluene (Surrogate)	mg/kg	-	7.7	7.5	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	7.9	50	1
		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)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280644.006	LB343241.029	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
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.2	8.7	30	20
			d8-toluene (Surrogate)	µg/L	-	9.3	7.6	30	19
			Bromofluorobenzene (Surrogate)	µg/L	-	9.7	9.6	30	1
		Totals	Total BTEX	µg/L	3	<3	<3	200	0
SE280680.010	LB343241.027	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
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.6	8.8	30	2
			d8-toluene (Surrogate)	µg/L	-	8.7	8.2	30	6
			Bromofluorobenzene (Surrogate)	µg/L	-	8.9	9.6	30	8
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280680.001	LB343004.014		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	-	6.9	7.1	50	3
			d8-toluene (Surrogate)	mg/kg	-	7.3	7.3	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.5	8.6	50	14
		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
SE280680.004	LB343004.025		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	-	6.2	7.6	50	20
			d8-toluene (Surrogate)	mg/kg	-	7.7	7.5	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	7.9	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

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280644.006	LB343241.026		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	-	7.2	8.7	30	20
			d8-toluene (Surrogate)	µg/L	-	9.3	7.6	30	19

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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 Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280644.006	LB343241.026	Surrogates	Bromofluorobenzene (Surrogate)	µg/L	-	9.7	9.6	30	1
		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
SE280680.010	LB343241.027		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	-	8.6	8.8	30	2
			d8-toluene (Surrogate)	µg/L	-	8.7	8.2	30	6
			Bromofluorobenzene (Surrogate)	µg/L	-	8.9	9.6	30	8
		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 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 %
LB343014.002	Mercury	mg/kg	0.05	0.23	0.2	80 - 120	114

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343001.002	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	90
	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	98
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	99
	Dieldrin	mg/kg	0.1	0.2	0.2	60 - 140	98
	Endrin	mg/kg	0.1	0.2	0.2	60 - 140	98
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	75
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.48	0.5	40 - 130	96

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343001.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.3	2	60 - 140	114
	Diazinon (Dimpylate)	mg/kg	0.5	2.1	2	60 - 140	107
	Dichlorvos	mg/kg	0.5	2.3	2	60 - 140	115
	Ethion	mg/kg	0.2	2.4	2	60 - 140	121
Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	97
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343001.002	Naphthalene	mg/kg	0.1	4.0	4	60 - 140	99
	Acenaphthylene	mg/kg	0.1	4.0	4	60 - 140	100
	Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	101
	Phenanthrene	mg/kg	0.1	4.3	4	60 - 140	109
	Anthracene	mg/kg	0.1	4.1	4	60 - 140	102
	Fluoranthene	mg/kg	0.1	4.5	4	60 - 140	114
	Pyrene	mg/kg	0.1	4.9	4	60 - 140	122
	Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	114
Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	94
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	97
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	100

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343001.002	Arochlor 1260	mg/kg	0.1	0.3	0.4	60 - 140	84
Surrogates	TCMX (Surrogate)	mg/kg	-	0.48	0.5	40 - 130	96

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 %
LB343008.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	111
	Cadmium, Cd	mg/kg	0.3	5.2	4.81	70 - 130	109
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	101
	Copper, Cu	mg/kg	0.5	320	290	80 - 120	109
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	107
	Lead, Pb	mg/kg	1	96	89.9	80 - 120	107
	Zinc, Zn	mg/kg	2	290	273	80 - 120	106

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343209.002	Arsenic	μg/L	1	19	20	80 - 120	94
	Cadmium	μg/L	0.1	22	20	80 - 120	110
	Chromium	μg/L	1	21	20	80 - 120	106
	Copper	μg/L	1	22	20	80 - 120	112
	Lead	μg/L	1	21	20	80 - 120	104
	Nickel	μg/L	1	21	20	80 - 120	107
	Zinc	μg/L	5	19	20	80 - 120	96

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343001.002		TRH C10-C14	mg/kg	20	41	40	60 - 140	103
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	104
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	95
	TRH F Bands	TRH >C10-C16	mg/kg	25	42	40	60 - 140	106
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	103
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	96

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343028.002		TRH C10-C14	µg/L	50	1500	1200	60 - 140	123
		TRH C15-C28	µg/L	200	1600	1200	60 - 140	134
		TRH C29-C36	µg/L	200	1600	1200	60 - 140	136
	TRH F Bands	TRH >C10-C16	µg/L	60	1600	1200	60 - 140	132
		TRH >C16-C34 (F3)	µg/L	500	1600	1200	60 - 140	136
		TRH >C34-C40 (F4)	µg/L	500	820	600	60 - 140	137

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343004.002	Halogenated Aliphatics	1,1-dichloroethene	mg/kg	0.1	4.7	5	60 - 140	95
		1,2-dichloroethane	mg/kg	0.1	4.2	5	60 - 140	85
		Trichloroethene (Trichloroethylene,TCE)	mg/kg	0.1	4.1	5	60 - 140	83
	Halogenated	Chlorobenzene	mg/kg	0.1	4.0	5	60 - 140	80
	Monocyclic Aromatic	Benzene	mg/kg	0.1	4.0	5	60 - 140	81
		Toluene	mg/kg	0.1	4.1	5	60 - 140	83
		Ethylbenzene	mg/kg	0.1	4.1	5	60 - 140	82
		m/p-xylene	mg/kg	0.2	8.0	10	60 - 140	80
		o-xylene	mg/kg	0.1	4.3	5	60 - 140	86
	Trihalomethan	Chloroform (THM)	mg/kg	0.1	3.9	5	60 - 140	78

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343241.002	Monocyclic Aromatic	Benzene	µg/L	0.5	42	45.45	60 - 140	93
		Toluene	µg/L	0.5	42	45.45	60 - 140	91
		Ethylbenzene	µg/L	0.5	40	45.45	60 - 140	89
		m/p-xylene	µg/L	1	81	90.9	60 - 140	89
		o-xylene	µg/L	0.5	43	45.45	60 - 140	94
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	10	60 - 140	97
		d8-toluene (Surrogate)	µg/L	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	µg/L	-	10.0	10	70 - 130	100

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343004.002		TRH C6-C10	mg/kg	25	66	92.5	60 - 140	72
		TRH C6-C9	mg/kg	20	57	80	60 - 140	71
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	42	62.5	60 - 140	67

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343241.002		TRH C6-C10	µg/L	50	660	946.63	60 - 140	69
		TRH C6-C9	µg/L	40	610	818.71	60 - 140	74
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	10	60 - 140	97
		d8-toluene (Surrogate)	µg/L	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	µg/L	-	10.0	10	70 - 130	100
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	410	639.67	60 - 140	64

MATRIX SPIKES

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280677.001	LB343053.004		Mercury	mg/L	0.0001	0.0017	-0.052	0.008	90

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343001.004		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	97
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	107
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	104
			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	0.2	<0.1	0.2	102
			Endrin	mg/kg	0.1	0.2	<0.1	0.2	107
			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	80
			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	1.2	<0.1	-	-
			Total OC VIC EPA IWRG621	mg/kg	0.1	1.2	<0.1	-	-
			Total Other OCP VIC EPA IWRG621	mg/kg	0.1	0.6	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.48	0.47	-	96

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343001.004		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	2.1	<0.5	2	106
			Dichlorvos	mg/kg	0.5	2.2	<0.5	2	109
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	2.2	<0.2	2	109
			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	8.8	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	99
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343001.004		Naphthalene	mg/kg	0.1	4.0	<0.1	4	99
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.0	<0.1	4	100
			Acenaphthene	mg/kg	0.1	4.1	<0.1	4	101
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.5	<0.1	4	112
			Anthracene	mg/kg	0.1	4.1	<0.1	4	104
			Fluoranthene	mg/kg	0.1	4.6	<0.1	4	114

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343001.004		Pyrene	mg/kg	0.1	4.9	<0.1	4	123
			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	4.8	<0.1	4	119
			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	4.8	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.8	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.9	<0.3	-	-
			Total PAH (18)	mg/kg	0.8	35	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	95
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	99
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	99

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343001.004		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	-	-
			Arochlor 1221	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	0.4	<0.1	0.4	93
			Total PCBs	mg/kg	0.1	0.4	<0.1	-	-
		Surrogates	TCMX (Surrogate)	mg/kg	-	0.48	0.47	-	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%
SE280749.001	LB343008.004		Arsenic, As	mg/kg	1	53	5	50	97
			Cadmium, Cd	mg/kg	0.3	44	<0.3	50	89
			Chromium, Cr	mg/kg	0.5	57	9.4	50	95
			Copper, Cu	mg/kg	0.5	54	6.2	50	95
			Nickel, Ni	mg/kg	0.5	49	3.1	50	92
			Lead, Pb	mg/kg	1	59	14	50	89
			Zinc, Zn	mg/kg	2	61	13	50	96

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280677.001	LB343209.004		Arsenic	µg/L	1	20	0.083	20	98
			Cadmium	µg/L	0.1	22	0.062	20	110
			Chromium	µg/L	1	21	0.061	20	106
			Copper	µg/L	1	23	1.38	20	107
			Lead	µg/L	1	22	1.292	20	103
			Nickel	µg/L	1	23	2.253	20	103
			Zinc	µg/L	5	47	24.562	20	112

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343001.004		TRH C10-C14	mg/kg	20	47	<20	40	109
			TRH C15-C28	mg/kg	45	49	<45	40	104
			TRH C29-C36	mg/kg	45	47	<45	40	106
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	140	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	47	<25	40	108
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	47	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	104
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343004.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	3.4	<0.1	5	68
			Toluene	mg/kg	0.1	3.6	<0.1	5	71
			Ethylbenzene	mg/kg	0.1	3.6	<0.1	5	72
			m/p-xylene	mg/kg	0.2	7.0	<0.2	10	69
			o-xylene	mg/kg	0.1	3.9	<0.1	5	77
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.3	7.2	-	73
			d8-toluene (Surrogate)	mg/kg	-	7.0	7.2	-	70
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.2	8.9	-	72
		Totals	Total BTEX*	mg/kg	0.6	21	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	11	<0.3	-	-

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280773.020	LB343241.028	Monocyclic Aromatic	Benzene	µg/L	0.5	34	<0.5	45.45	74
			Toluene	µg/L	0.5	43	<0.5	45.45	94
			Ethylbenzene	µg/L	0.5	39	<0.5	45.45	85
			m/p-xylene	µg/L	1	84	<1	90.9	92
			o-xylene	µg/L	0.5	43	<0.5	45.45	95
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	6.6	8.6	-	66
			d8-toluene (Surrogate)	µg/L	-	9.6	8.7	-	96
			Bromofluorobenzene (Surrogate)	µg/L	-	10.3	8.9	-	103
		Totals	Total BTEX	µg/L	3	240	<3	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280749.001	LB343004.004		TRH C6-C10	mg/kg	25	97	<25	92.5	104
			TRH C6-C9	mg/kg	20	87	<20	80	109
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.3	7.2	-	73
			d8-toluene (Surrogate)	mg/kg	-	7.0	7.2	-	70
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.2	8.9	-	72
		VPH F Bands	Benzene (F0)	mg/kg	0.1	3.4	<0.1	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	75	<25	62.5	119

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280773.020	LB343241.028		TRH C6-C10	µg/L	50	1100	<50	946.63	114
			TRH C6-C9	µg/L	40	1000	<40	818.71	125
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	6.6	8.6	-	66
			d8-toluene (Surrogate)	µg/L	-	9.6	8.7	-	96
			Bromofluorobenzene (Surrogate)	µg/L	-	10.3	8.9	-	103
		VPH F Bands	Benzene (F0)	µg/L	0.5		<0.5	-	-
			TRH C6-C10 minus BTEX (F1)	µg/L	50	860	<50	639.67	131

MATRIX SPIKE DUPLICATES

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

FOOTNOTES

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: 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.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Order Number	**E25874**
Samples	5

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Date Received	9/4/2025
Date Reported	23/4/2025

COMMENTS

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

SIGNATORIES

Akheeqar BENIAMEEN	**Bennet LO**	**Dong LIANG**	**Ly Kim HA**
Chemist	Senior Chemist	Metals/Inorganics Team Leader	Organic Section Head

VOCs in Water [AN433] Tested: 14/4/2025

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001	GWQD1 WATER - 9/4/2025 SE281162.002	GWQR1 WATER - 9/4/2025 SE281162.003	TS WATER - 9/4/2025 SE281162.004	TB WATER - 9/4/2025 SE281162.005
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	[101%]	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	[98%]	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	[113%]	<0.5
m/p-xylene	μg/L	1	<1	<1	<1	[108%]	<1
o-xylene	μg/L	0.5	<0.5	<0.5	<0.5	[108%]	<0.5
Total Xylenes	μg/L	1.5	<1.5	<1.5	<1.5	-	<1.5
Total BTEX	μg/L	3	<3	<3	<3	-	<3
Naphthalene (VOC)*	μg/L	0.5	<0.5	<0.5	<0.5	[113%]	<0.5
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	-	-	-	-
Acetone (2-propanone)	μg/L	10	<10	-	-	-	-
Iodomethane	μg/L	5	<5	-	-	-	-
1,1-dichloroethene	μg/L	0.5	<0.5	-	-	-	-
Acrylonitrile	μg/L	0.5	<0.5	-	-	-	-
Dichloromethane (Methylene chloride)	μg/L	5	<5	-	-	-	-
Allyl chloride	μg/L	2	<2	-	-	-	-
Carbon disulfide	μg/L	2	<2	-	-	-	-
trans-1,2-dichloroethene	μg/L	0.5	<0.5	-	-	-	-
MtBE (Methyl-tert-butyl ether)	μg/L	0.5	<0.5	-	-	-	-
1,1-dichloroethane	μg/L	0.5	<0.5	-	-	-	-
Vinyl acetate*	μg/L	10	<10	-	-	-	-
MEK (2-butanone)	μg/L	10	<10	-	-	-	-
cis-1,2-dichloroethene	μg/L	0.5	<0.5	-	-	-	-
Bromochloromethane	μg/L	0.5	<0.5	-	-	-	-
Chloroform (THM)	μg/L	0.5	<0.5	-	-	-	-
2,2-dichloropropane	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	-	-	-	-
1,2-dichloropropane	μg/L	0.5	<0.5	-	-	-	-
Trichloroethene (Trichloroethylene,TCE)	μg/L	0.5	<0.5	-	-	-	-
2-nitropropane	μg/L	100	<100	-	-	-	-
Bromodichloromethane (THM)	μg/L	0.5	<0.5	-	-	-	-
MIBK (4-methyl-2-pentanone)	μg/L	5	<5	-	-	-	-
cis-1,3-dichloropropene	μg/L	0.5	<0.5	-	-	-	-
trans-1,3-dichloropropene	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	-	-	-	-
Dibromochloromethane (THM)	μg/L	0.5	<0.5	-	-	-	-
2-hexanone (MBK)	μg/L	5	<5	-	-	-	-
1,2-dibromoethane (EDB)	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	-	-	-	-
Chlorobenzene	μg/L	0.5	<0.5	-	-	-	-
Bromoform (THM)	μg/L	0.5	<0.5	-	-	-	-
Styrene (Vinyl benzene)	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	-	-	-	-	-
Isopropylbenzene (Cumene)	μg/L	0.5	<0.5	-	-	-	-

VOCs in Water [AN433] Tested: 14/4/2025 (continued)

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001	GWQD1 WATER - 9/4/2025 SE281162.002	GWQR1 WATER - 9/4/2025 SE281162.003	TS WATER - 9/4/2025 SE281162.004	TB WATER - 9/4/2025 SE281162.005
Bromobenzene	µg/L	0.5	<0.5	-	-	-	-
n-propylbenzene	µg/L	0.5	<0.5	-	-	-	-
2-chlorotoluene	µg/L	0.5	<0.5	-	-	-	-
4-chlorotoluene	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	-	-	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	-	-	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	-	-	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	-	-	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	-	-	-	-
n-butylbenzene	µg/L	0.5	<0.5	-	-	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	-	-	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	-	-	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	-	-	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	-	-	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-	-	-	-
Total VOC	µg/L	10	<10	-	-	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 14/4/2025

			GWBH2M-1	GWQD1	GWQR1
			WATER	WATER	WATER
			-	-	-
			9/4/2025	9/4/2025	9/4/2025
PARAMETER	**UOM**	**LOR**	**SE281162.001**	**SE281162.002**	**SE281162.003**
TRH C6-C9	µg/L	40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 10/4/2025

			GWBH2M-1 WATER - 9/4/2025	GWQD1 WATER - 9/4/2025	GWQR1 WATER - 9/4/2025
PARAMETER	**UOM**	**LOR**	**SE281162.001**	**SE281162.002**	**SE281162.003**
TRH C10-C14	µg/L	50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	**210**	<200
TRH C37-C40	µg/L	200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	**410**	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 10/4/2025

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001
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(b&j)fluoranthene	μg/L	0.1	<0.1
Benzo(k)fluoranthene	μg/L	0.1	<0.1
Benzo(b&j&k)fluoranthene	μg/L	0.2	<0.2
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
Total PAH (18)	μg/L	1	<1

Total Phenolics in Water [AN295] Tested: 11/4/2025

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001
Total Phenols	mg/L	0.05	<0.05

pH in water [AN101] Tested: 10/4/2025

			GWBH2M-1 WATER - 9/4/2025
PARAMETER	UOM	LOR	SE281162.001
pH**	pH Units	0.1	**4.6**

Conductivity and TDS by Calculation - Water [AN106] Tested: 10/4/2025

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001
Conductivity @ 25 C	µS/cm	2	320

Total Dissolved Solids (TDS) in water [AN113] Tested: 10/4/2025

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001
Total Dissolved Solids Dried at 175-185°C	mg/L	10	160

Turbidity [AN119] Tested: 10/4/2025

			GWBH2M-1 WATER - 9/4/2025
PARAMETER	**UOM**	**LOR**	**SE281162.001**
Turbidity	NTU	0.5	2.1

Total Cyanide in water by Discrete Analyser [AN077/AN287] Tested: 11/4/2025

			GWBH2M-1 WATER - 9/4/2025
PARAMETER	UOM	LOR	SE281162.001
Total Cyanide	mg/L	0.004	<0.004

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 11/4/2025

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001
Calcium, Ca	mg/L	0.2	**2.1**
Magnesium, Mg	mg/L	0.1	**4.8**
Total Hardness by Calculation	mg CaCO3/L	1	**25**

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 11/4/2025

PARAMETER	UOM	LOR	GWBH2M-1 WATER - 9/4/2025 SE281162.001	GWQD1 WATER - 9/4/2025 SE281162.002	GWQR1 WATER - 9/4/2025 SE281162.003
Aluminium	µg/L	5	1100	-	-
Arsenic	µg/L	1	1	1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Chromium	µg/L	1	4	4	<1
Copper	µg/L	1	36	36	<1
Lead	µg/L	1	3	3	<1
Nickel	µg/L	1	3	3	<1
Zinc	µg/L	5	30	30	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 11/4/2025

			GWBH2M-1 WATER - 9/4/2025	GWQD1 WATER - 9/4/2025	GWQR1 WATER - 9/4/2025
PARAMETER	**UOM**	**LOR**	**SE281162.001**	**SE281162.002**	**SE281162.003**
Mercury	mg/L	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.
AN077	Hydrogen cyanide is liberated from an acidified sample by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
AN106	Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present , measured by the conductivity, are present as NaCl.
AN113	Total Dissolved Solids: A well-mixed filtered sample of known volume is evaporated to dryness at 180°C and the residue weighed. Approximate methods for correlating chemical analysis with dissolved solids are available . Reference APHA 2540 C.
AN113	The Total Dissolved Solids residue may also be ignited at 550 C and volatile TDS (Organic TDS) and non-volatile TDS (Inorganic) can be determined.
AN119	Turbidity by Nephelometry: Small particles in a light beam scatter light at a range of angles. A turbidimeter measures this scatter and reports results compared to turbidity standards, in NTU. This procedure is not suitable for very dark coloured liquids or samples with high solids because light absorption causes artificially low light scatter and low turbidity. Reference APHA 2130B.
AN287	A buffered distillate or water sample is treated with chloramine /barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by DA.
AN295	The water sample or extract of sample is distilled in a phosphoric acid stream. Phenolic compounds in the distillate react with a reagent stream of potassium hexacyanoferrate (III) and 4-Amino-2,3-dimethyl-3-pryazolin-5-one in an alkaline medium to form a coloured complex which is analysed spectrophotometrically onboard a continuous flow analyser.
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).
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components .
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements . Reference APHA 3120 B.
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 Recoveerable 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 ± 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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STATEMENT OF QA/QC PERFORMANCE

SE281162 R0

CLIENT DETAILS

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Project	**E25874 10-28 Lawrence St, Freshwater, NS**
Order Number	**E25874**
Samples	5

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SGS Reference	**SE281162 R0**
Date Received	09 Apr 2025
Date Reported	23 Apr 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:

Analysis Date	pH in water	1 item
	Turbidity	1 item

SAMPLE SUMMARY

Type of documentation received	COC	Date documentation received	9/4/2025
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	18.1°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

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

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB343956	09 Apr 2025	09 Apr 2025	07 May 2025	10 Apr 2025	07 May 2025	11 Apr 2025

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
GWBH2M-1	SE281162.001	LB343998	09 Apr 2025	09 Apr 2025	07 May 2025	11 Apr 2025	07 May 2025	14 Apr 2025
GWQD1	SE281162.002	LB343998	09 Apr 2025	09 Apr 2025	07 May 2025	11 Apr 2025	07 May 2025	14 Apr 2025
GWQR1	SE281162.003	LB343998	09 Apr 2025	09 Apr 2025	07 May 2025	11 Apr 2025	07 May 2025	14 Apr 2025

Metals in Water (Dissolved) by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB344093	09 Apr 2025	09 Apr 2025	06 Oct 2025	11 Apr 2025	06 Oct 2025	14 Apr 2025

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB343791	09 Apr 2025	09 Apr 2025	16 Apr 2025	10 Apr 2025	20 May 2025	15 Apr 2025
GWQD1	SE281162.002	LB343791	09 Apr 2025	09 Apr 2025	16 Apr 2025	10 Apr 2025	20 May 2025	15 Apr 2025
GWQR1	SE281162.003	LB343791	09 Apr 2025	09 Apr 2025	16 Apr 2025	10 Apr 2025	20 May 2025	15 Apr 2025

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB343956	09 Apr 2025	09 Apr 2025	10 Apr 2025	10 Apr 2025	10 Apr 2025	11 Apr 2025†

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB344006	09 Apr 2025	09 Apr 2025	23 Apr 2025	11 Apr 2025	23 Apr 2025	11 Apr 2025

Total Dissolved Solids (TDS) in water

Method: ME-(AU)-[ENV]AN113

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB343804	09 Apr 2025	09 Apr 2025	16 Apr 2025	10 Apr 2025	16 Apr 2025	11 Apr 2025

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN295

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB344057	09 Apr 2025	09 Apr 2025	23 Apr 2025	11 Apr 2025	23 Apr 2025	14 Apr 2025

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
GWBH2M-1	SE281162.001	LB344086	09 Apr 2025	09 Apr 2025	06 Oct 2025	11 Apr 2025	06 Oct 2025	15 Apr 2025
GWQD1	SE281162.002	LB344086	09 Apr 2025	09 Apr 2025	06 Oct 2025	11 Apr 2025	06 Oct 2025	15 Apr 2025
GWQR1	SE281162.003	LB344086	09 Apr 2025	09 Apr 2025	06 Oct 2025	11 Apr 2025	06 Oct 2025	15 Apr 2025

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
GWBH2M-1	SE281162.001	LB343791	09 Apr 2025	09 Apr 2025	16 Apr 2025	10 Apr 2025	20 May 2025	15 Apr 2025
GWQD1	SE281162.002	LB343791	09 Apr 2025	09 Apr 2025	16 Apr 2025	10 Apr 2025	20 May 2025	15 Apr 2025
GWQR1	SE281162.003	LB343791	09 Apr 2025	09 Apr 2025	16 Apr 2025	10 Apr 2025	20 May 2025	15 Apr 2025

Turbidity

Method: ME-(AU)-[ENV]AN119

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB343958	09 Apr 2025	09 Apr 2025	10 Apr 2025	10 Apr 2025	10 Apr 2025	14 Apr 2025†

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
GWQD1	SE281162.002	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
GWQR1	SE281162.003	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
TS	SE281162.004	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
TB	SE281162.005	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025

HOLDING TIME SUMMARY

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

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

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GWBH2M-1	SE281162.001	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
GWQD1	SE281162.002	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
GWQR1	SE281162.003	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
TS	SE281162.004	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025
TB	SE281162.005	LB344197	09 Apr 2025	09 Apr 2025	23 Apr 2025	14 Apr 2025	23 Apr 2025	16 Apr 2025

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	66
d14-p-terphenyl (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	68
d5-nitrobenzene (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	63

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	97
	GWQD1	SE281162.002	%	40 - 130%	101
	GWQR1	SE281162.003	%	40 - 130%	87
	TS	SE281162.004	%	40 - 130%	103
	TB	SE281162.005	%	40 - 130%	90
d4-1,2-dichloroethane (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	79
	GWQD1	SE281162.002	%	40 - 130%	84
	GWQR1	SE281162.003	%	40 - 130%	102
	TS	SE281162.004	%	40 - 130%	94
	TB	SE281162.005	%	40 - 130%	98
d8-toluene (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	85
	GWQD1	SE281162.002	%	40 - 130%	85
	GWQR1	SE281162.003	%	40 - 130%	87
	TS	SE281162.004	%	40 - 130%	85
	TB	SE281162.005	%	40 - 130%	86

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	97
	GWQD1	SE281162.002	%	40 - 130%	101
	GWQR1	SE281162.003	%	40 - 130%	87
d4-1,2-dichloroethane (Surrogate)	GWBH2M-1	SE281162.001	%	60 - 130%	79
	GWQD1	SE281162.002	%	60 - 130%	84
	GWQR1	SE281162.003	%	60 - 130%	102
d8-toluene (Surrogate)	GWBH2M-1	SE281162.001	%	40 - 130%	85
	GWQD1	SE281162.002	%	40 - 130%	85
	GWQR1	SE281162.003	%	40 - 130%	87

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.

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB343956.001	Conductivity @ 25 C	µS/cm	2	<2
LB343956.026	Conductivity @ 25 C	µS/cm	2	<2

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB343998.001	Mercury	mg/L	0.0001	<0.0001

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result
LB344093.001	Calcium, Ca	mg/L	0.2	<0.2
	Magnesium, Mg	mg/L	0.1	<0.1

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB343791.001		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(b&j&k)fluoranthene	µg/L	0.2	<0.2
		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)	%	-	74
		d14-p-terphenyl (Surrogate)	%	-	76

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB344006.001	Total Cyanide	mg/L	0.004	<0.004

Total Dissolved Solids (TDS) in water

Method: ME-(AU)-[ENV]AN113

Sample Number	Parameter	Units	LOR	Result
LB343804.001	Total Dissolved Solids Dried at 175-185°C	mg/L	10	<10

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN295

Sample Number	Parameter	Units	LOR	Result
LB344057.001	Total Phenols	mg/L	0.05	<0.05

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result
LB344086.001	Aluminium	µg/L	5	<5
	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB344086.001	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
LB343791.001	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

Turbidity

Method: ME-(AU)-[ENV]AN119

Sample Number	Parameter	Units	LOR	Result
LB343958.001	Turbidity	NTU	0.5	<0.5

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB344197.001	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
		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
		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	Benzene	µg/L	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB344197.001	Monocyclic Aromatic Hydrocarbons	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)	%	-	95
		d8-toluene (Surrogate)	%	-	83
		Bromofluorobenzene (Surrogate)	%	-	88
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB344197.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	95
		d8-toluene (Surrogate)	%	-	83
		Bromofluorobenzene (Surrogate)	%	-	88

DUPLICATES

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281173.001	LB343956.014	Conductivity @ 25 C	µS/cm	2	1600	1600	15	0
SE281224.002	LB343956.025	Conductivity @ 25 C	µS/cm	2	840	860	15	2
SE281224.003	LB343956.028	Conductivity @ 25 C	µS/cm	2	580	590	15	2

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281180.002	LB343998.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	182	0
SE281216.008	LB343998.024	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Metals in Water (Dissolved) by ICPOES

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281134.001	LB344093.014	Calcium, Ca	mg/L	0.2	380	380	15	0
SE281162.001	LB344093.016	Calcium, Ca	mg/L	0.2	2.1	2.1	25	0
		Magnesium, Mg	mg/L	0.1	4.8	4.7	17	0

pH in water

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281224.002	LB343956.025	pH**	pH Units	0.1	5.9	5.8	17	2
SE281224.003	LB343956.028	pH**	pH Units	0.1	5.3	5.3	17	0

Total Dissolved Solids (TDS) in water

Method: ME-(AU)-[ENV]AN113

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE280992.001	LB343804.013	Total Dissolved Solids Dried at 175-185°C	mg/L	10	2100	2100	15	2
SE281133.001	LB343804.026	Total Dissolved Solids Dried at 175-185°C	mg/L	10	2500	2400	15	4

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN295

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281224.003	LB344057.014	Total Phenols	mg/L	0.05	<0.05	<0.05	200	0
SE281258.001	LB344057.016	Total Phenols	mg/L	0.05	0.16	0.15	48	10

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281166.018	LB344086.014	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	96	1
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0
SE281176.001	LB344086.016	Lead	µg/L	1	<1	<1	200	0

Turbidity

Method: ME-(AU)-[ENV]AN119

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281224.003	LB343958.009	Turbidity	NTU	0.5	21	20	17	5

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281224.002	LB344197.023	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 Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	200	0
			Chloromethane	µg/L	5	<5	<5	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	200	0
			Bromomethane	µg/L	10	<10	<10	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281224.002	LB344197.023	Halogenated Aliphatics	Chloroethane	µg/L	5	<5	<5	200	0
			Trichlorofluoromethane	µg/L	1	<1	<1	200	0
			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
			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 Aromatics	Chlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			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 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
			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 Compounds	Acrylonitrile	µg/L	0.5	<0.5	<0.5	200	0
			2-nitropropane	µg/L	100	<100	<100	200	0
		Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10	<10	200	0
			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	-	9.4	7.6	30	21
			d8-toluene (Surrogate)	µg/L	-	8.7	8.5	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	10	9.2	30	9
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281224.002	LB344197.023	Trihalomethanes	Chloroform (THM)	µg/L	0.5	11	11	35	2
			Bromodichloromethane (THM)	µg/L	0.5	2.3	1.6	55	37
			Dibromochloromethane (THM)	µg/L	0.5	0.8	<0.5	117	50
			Bromoform (THM)	µg/L	0.5	<0.5	<0.5	200	0
SE281301.001	LB344197.024	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
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10	7.9	30	27
			d8-toluene (Surrogate)	µg/L	-	7.0	8.6	30	21
			Bromofluorobenzene (Surrogate)	µg/L	-	11	9.8	30	11
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281224.002	LB344197.023		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	-	9.4	7.6	30	21
			d8-toluene (Surrogate)	µg/L	-	8.7	8.5	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	10	9.2	30	9
		VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0
SE281301.001	LB344197.024		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	-	10	7.9	30	27
			d8-toluene (Surrogate)	µg/L	-	7.0	8.6	30	21
			Bromofluorobenzene (Surrogate)	µg/L	-	11	9.8	30	11
		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 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.

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343956.002	Conductivity @ 25 C	µS/cm	2	1000	1015	85 - 115	102

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344093.002	Calcium, Ca	mg/L	0.2	50	50.5	80 - 120	100
	Magnesium, Mg	mg/L	0.1	47	50.5	80 - 120	92

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343791.002		Naphthalene	µg/L	0.1	32	40	60 - 140	80
		Acenaphthylene	µg/L	0.1	35	40	60 - 140	87
		Acenaphthene	µg/L	0.1	34	40	60 - 140	85
		Phenanthrene	µg/L	0.1	33	40	60 - 140	83
		Anthracene	µg/L	0.1	31	40	60 - 140	77
		Fluoranthene	µg/L	0.1	33	40	60 - 140	81
		Pyrene	µg/L	0.1	32	40	60 - 140	79
		Benzo(a)pyrene	µg/L	0.1	38	40	60 - 140	94
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.30	0.5	40 - 130	60
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.36	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	µg/L	-	0.29	0.5	40 - 130	58

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343956.003	pH**	pH Units	0.1	7.4	7.415	98 - 102	100

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344006.002	Total Cyanide	mg/L	0.004	0.027	0.025	80 - 120	110

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN295

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344057.002	Total Phenols	mg/L	0.05	0.19	0.2	80 - 120	94

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344086.002	Aluminium	µg/L	5	22	20	80 - 120	108
	Arsenic	µg/L	1	19	20	80 - 120	96
	Cadmium	µg/L	0.1	23	20	80 - 120	114
	Chromium	µg/L	1	22	20	80 - 120	110
	Copper	µg/L	1	23	20	80 - 120	117
	Lead	µg/L	1	22	20	80 - 120	108
	Nickel	µg/L	1	22	20	80 - 120	111
	Zinc	µg/L	5	22	20	80 - 120	111

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB343791.002		TRH C10-C14	µg/L	50	1000	1200	60 - 140	84
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	101
		TRH C29-C36	µg/L	200	1000	1200	60 - 140	84
	TRH F Bands	TRH >C10-C16	µg/L	60	1100	1200	60 - 140	95
		TRH >C16-C34 (F3)	µg/L	500	1200	1200	60 - 140	97
		TRH >C34-C40 (F4)	µg/L	500	<500	600	60 - 140	77

VOCs in Water

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

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344197.002	Halogenated Aliphatics	1,1-dichloroethene	µg/L	0.5	38	45.45	60 - 140	84
		1,2-dichloroethane	µg/L	0.5	48	45.45	60 - 140	105
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	53	45.45	60 - 140	117
	Halogenated Monocyclic Aromatic	Chlorobenzene	µg/L	0.5	54	45.45	60 - 140	118
		Benzene	µg/L	0.5	54	45.45	60 - 140	118
		Toluene	µg/L	0.5	50	45.45	60 - 140	109
		Ethylbenzene	µg/L	0.5	40	45.45	60 - 140	88
		m/p-xylene	µg/L	1	84	90.9	60 - 140	92
		o-xylene	µg/L	0.5	41	45.45	60 - 140	91
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.9	10	60 - 140	89
		d8-toluene (Surrogate)	µg/L	-	9.3	10	70 - 130	93
		Bromofluorobenzene (Surrogate)	µg/L	-	8.3	10	70 - 130	83
	Trihalomethan	Chloroform (THM)	µg/L	0.5	55	45.45	60 - 140	121

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344197.002		TRH C6-C10	µg/L	50	760	946.63	60 - 140	81
		TRH C6-C9	µg/L	40	660	818.71	60 - 140	81
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.9	10	60 - 140	89
		d8-toluene (Surrogate)	µg/L	-	9.3	10	70 - 130	93
		Bromofluorobenzene (Surrogate)	µg/L	-	8.3	10	70 - 130	83
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	490	639.67	60 - 140	77

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE281101.001	LB343998.004	Mercury	mg/L	0.0001	0.0018	<0.0001	0.008	93

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE281224.003	LB344006.008	Total Cyanide	mg/L	0.004	0.026	<0.004	0.025	99

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN295

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE280986.001	LB344057.004	Total Phenols	mg/L	0.05	0.19	<0.05	0.2	92

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE281099.001	LB344086.004	Aluminium	µg/L	5	29	9	20	98

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE281224.004	LB344197.025	Monocyclic Aromatic	Benzene	µg/L	0.5	48	<0.5	45.45	105
			Toluene	µg/L	0.5	48	<0.5	45.45	105
			Ethylbenzene	µg/L	0.5	46	<0.5	45.45	101
			m/p-xylene	µg/L	1	90	<1	90.9	99
			o-xylene	µg/L	0.5	46	<0.5	45.45	101
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	45	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.2	9.4	-	92
			d8-toluene (Surrogate)	µg/L	-	10	8.8	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	9.7	10	-	97
		Totals	Total BTEX	µg/L	3	280	<3	-	-

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE281224.004	LB344197.025		TRH C6-C10	µg/L	50	820	<50	946.63	86
			TRH C6-C9	µg/L	40	730	<40	818.71	89
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.2	9.4	-	92
			d8-toluene (Surrogate)	µg/L	-	10	8.8	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	9.7	10	-	97
		VPH F Bands	Benzene (F0)	µg/L	0.5		<0.5	-	-
			TRH C6-C10 minus BTEX (F1)	µg/L	50	540	<50	639.67	84

MATRIX SPIKE DUPLICATES

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

FOOTNOTES

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: 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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CERTIFICATE OF ANALYSIS 377265

Client Details

Client	EI Australia
Attention	Jordan Goehner-Drewe
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E25874, 10-28 Lawrence St, Freshwater NSW**
Number of Samples	1 Soil
Date samples received	02/04/2025
Date completed instructions received	01/04/2025

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	09/04/2025
Date of Issue	09/04/2025

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Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		377265-1
Your Reference	UNITS	QT1
Date Sampled		31/03/2025
Type of sample		Soil
Date extracted	-	03/04/2025
Date analysed	-	04/04/2025
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	%	105

svTRH (C10-C40) in Soil		
Our Reference		377265-1
Your Reference	UNITS	QT1
Date Sampled		31/03/2025
Type of sample		Soil
Date extracted	-	03/04/2025
Date analysed	-	05/04/2025
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	94

Acid Extractable metals in soil		
Our Reference		377265-1
Your Reference	UNITS	QT1
Date Sampled		31/03/2025
Type of sample		Soil
Date prepared	-	03/04/2025
Date analysed	-	07/04/2025
Arsenic	mg/kg	<4
Cadmium	mg/kg	1
Chromium	mg/kg	10
Copper	mg/kg	47
Lead	mg/kg	110
Mercury	mg/kg	0.4
Nickel	mg/kg	5
Zinc	mg/kg	260

Moisture		
Our Reference		377265-1
Your Reference	UNITS	QT1
Date Sampled		31/03/2025
Type of sample		Soil
Date prepared	-	03/04/2025
Date analysed	-	04/04/2025
Moisture	%	14

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. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
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)-BTEX 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)-BTEX 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-4	[NT]
Date extracted	-			03/04/2025	[NT]	[NT]	[NT]	[NT]	03/04/2025	[NT]
Date analysed	-			04/04/2025	[NT]	[NT]	[NT]	[NT]	04/04/2025	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	94	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	101	[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]	95	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	107	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			03/04/2025	[NT]	[NT]	[NT]	[NT]	03/04/2025	[NT]
Date analysed	-			05/04/2025	[NT]	[NT]	[NT]	[NT]	05/04/2025	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH $>C_{10}$ -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH $>C_{16}$ -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH $>C_{34}$ -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	97	[NT]	[NT]	[NT]	[NT]	127	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			03/04/2025	[NT]	[NT]	[NT]	[NT]	03/04/2025	[NT]
Date analysed	-			07/04/2025	[NT]	[NT]	[NT]	[NT]	07/04/2025	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	111	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	108	[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]	108	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[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.

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CERTIFICATE OF ANALYSIS 377979

Client Details

Client	EI Australia
Attention	Jordan Goehner-Drewe
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E25874, 10-28 Lawrence St, Freshwater NSW**
Number of Samples	1 Water
Date samples received	10/04/2025
Date completed instructions received	11/04/2025

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	17/04/2025
Date of Issue	16/04/2025

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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		377979-1
Your Reference	UNITS	GWQT1
Date Sampled		09/04/2025
Type of sample		Water
Date extracted	-	15/04/2025
Date analysed	-	16/04/2025
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	%	102
Surrogate Toluene-d8	%	95
Surrogate 4-Bromofluorobenzene	%	89

svTRH (C10-C40) in Water

Our Reference		377979-1
Your Reference	UNITS	GWQT1
Date Sampled		09/04/2025
Type of sample		Water
Date extracted	-	15/04/2025
Date analysed	-	15/04/2025
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	%	88

HM in water - dissolved		
Our Reference		377979-1
Your Reference	UNITS	GWQT1
Date Sampled		09/04/2025
Type of sample		Water
Date prepared	-	15/04/2025
Date analysed	-	15/04/2025
Arsenic-Dissolved	µg/L	1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	4
Copper-Dissolved	µg/L	34
Lead-Dissolved	µg/L	2
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	3
Zinc-Dissolved	µg/L	26

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. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
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-W2	[NT]
Date extracted	-			15/04/2025	[NT]	[NT]	[NT]	[NT]	15/04/2025	[NT]
Date analysed	-			16/04/2025	[NT]	[NT]	[NT]	[NT]	16/04/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	85	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	85	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	81	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	85	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	95	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	92	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			15/04/2025	[NT]	[NT]	[NT]	[NT]	15/04/2025	[NT]
Date analysed	-			15/04/2025	[NT]	[NT]	[NT]	[NT]	15/04/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH $>C_{10}$ - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH $>C_{16}$ - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH $>C_{34}$ - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	81	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			15/04/2025	[NT]	[NT]	[NT]	[NT]	15/04/2025	[NT]
Date analysed	-			15/04/2025	[NT]	[NT]	[NT]	[NT]	15/04/2025	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	106	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[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

I1.1 Project QA/QC Protocols

The overall quality assurance comprises an assessment of the reliability of the field procedures and the laboratory results against standard industry practices, documented sampling and analysis plans or remediation action plans. A summary of the project QA/QC protocols to be followed during the investigation works is presented in **Table I-1**.

Table I-1 QA/QC Protocols

Task	Description	Project
Field QA/QC		
General	Work was to be undertaken following standard field procedures which are based on industry accepted standard practice.	Soil samples were collected directly from the drill auger or hand auger. Soil samples were placed in 250 gram glass jars, which were filled to minimise headspace and sealed using Teflon-coated lids. Groundwater samples were obtained using sample bottles/jars/vials provided by the laboratory. Dedicated laboratory-supplied sampling containers were used.
	All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.	Yes
Soil screening with PID	The PID was serviced and calibrated as per manufacturer requirements. PID calibrated at the beginning of each day of fieldwork.	Yes. See **Appendix G** for calibration documentation.
Equipment decontamination	Sampling equipment to be decontaminated after the collection of each soil sample by washing with phosphate-free detergent (such as Decon 90© or Alconox©) and potable water, followed by a final distilled water rinse. One rinsate blank would be collected and analysed for the primary contaminants. All results should be non-detect.	Yes. ▪ Decon90 was used to decontaminate the interface probe during groundwater sampling and tools during soil sampling. ▪ One rinsate sample was collected during soil investigations (QR1). ▪ One rinsate sample was collected during Ground water investigations (GWQR1).
Transport	Samples were stored in a chilled (with ice) cooler box and transported to the laboratories. To ensure the integrity of the samples from collection to receipt by the analytical laboratory, samples were sent by courier to the laboratories under 'chain of custody' describing sample preservation and transport duration.	Yes

Task	Description	Project
Trip Blanks	Trip Blank (TB) samples were to be prepared and analysed by the primary laboratory for BTEX. Analytical results for this sample were below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved.	One trip blank (TB) sample (TB) were prepared by the primary laboratory, were analysed for BTEX during soil and groundwater analysis. TB results were reported below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved.
Trip Spikes	Trip spike (TS) samples were to be submitted to the primary laboratory for BTEX analysis, the results for which were reported within the RPD acceptance levels for trip spike recovery. It was therefore concluded that satisfactory sample transport and handling conditions were achieved.	One trip spike (TS) sample (TS) from the soil and groundwater investigation was submitted to the primary laboratory for BTEX analysis, the results of which were reported within the RPD acceptance levels for trip spike recovery (Soil range: 102% - 104% & Groundwater range: 98%-113%). It was therefore concluded that satisfactory sample transport and handling conditions were achieved.
QA Samples	Field and laboratory QA samples were analysed as follows: ▪ intra-laboratory duplicate samples at a rate of 1 in 20 primary samples (as per NEPC, 2013); and ▪ Inter-laboratory duplicate samples at a rate of 1 in 20 primary samples (as per NEPC, 2013). Field and laboratory acceptable limits between 30–50% RPD as stated by AS 4482.1–2005. RPDs that exceed this range may be considered acceptable where: ▪ Results are less than 10 times the limits of reporting (LOR); ▪ Results are less than 20 times the LOR and the RPD is less than 50%; or ▪ Heterogeneous materials or volatile compounds are encountered. Non-compliance is to be documented in the report and the sample re-analysed or a higher level conservatively adopted.	The required sampling density of 1 per 20 duplicated primary samples was achieved and sufficient for the investigation. Minor non-conformance observed, considered to be derived from sample heterogeneity. Negligible effects on data use for interpretative purposes. Field and laboratory QA samples and RPD values are summarised in **Table B.3** Copies of laboratory reports are included in **Appendix H.**

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 analysis are included in **Appendix H.**
	Appropriate detection limits were used for the analyses to be undertaken.	Practical Quantitation Limits for all analysed parameters during the assessment are presented with the laboratory reports in **Appendix H**.
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.
Method Blanks	The method blank sample is laboratory prepared, containing the reagents used to prepare the sample for final analysis. The purpose of this procedure is to identify contamination in the reagent materials and assess potential bias in the sample analysis due to contaminated reagents. The QC criterion aims to find no detectable contamination in the reagents. Each analysis procedure should be subject to a method blank analysis. The results of each should indicate that contaminants were not detected.	Assessment of method blanks has been undertaken by the laboratory.
Laboratory Duplicates	Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These sub-samples are selected by the laboratory to assess the accuracy and precision of the analytical method. The selected laboratories should undertake QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. Intra-laboratory duplicates should be performed at a frequency of 1 per 10 samples.	Assessment of laboratory duplicates has been undertaken by the laboratory.

Task	Description	Project
Laboratory Control Standard	A laboratory control standard is a standard reference material used in preparing 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.
Matrix Spikes / Matrix Spike Duplicates (MS/MSD)	MS/MSDs 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 stated laboratory control limits of 70 to 130% and duplicates should have RPDs of less than 50%.	Assessment of matrix spikes has been undertaken by the laboratory.
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 the stated laboratory control limits of 70 to 130%.	Assessment of surrogate spikes has been undertaken by the laboratory.
QA/QC Conclusion	The QA/QC indicators should either all comply with the required standards or showed 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.

I1.2 Calculation of Relative Percentage Difference (RPD)

The RPD values were calculated using the following equation:

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

Where: C_O = Concentration obtained for the primary sample; and
C_R = Concentration obtained for the duplicate or triplicate sample.

I2.1 Field QA/QC Program

The field quality assurance/quality control (QA/QC) samples collected during the works are summarised in **Table I.2 and B.3**. Inter-lab duplicates were analysed for selected analytes by the secondary laboratory (Envirolab).

Table I-2 Field QA Sampling Program

Matrix	Primary QA Sample	Duplicate (Primary Lab)	Triplicate (Secondary Lab)	Total Duplicates	Ratio
Soil	EIBH1_0.3-0.4	QD1	QT1	1	1:6 primary samples duplicated.
Groundwater	GWBH2M-1	GWQD1	GWQT1	1	1:1 primary samples duplicated

I2.2 Field data quality indicators

A discussion of the field data quality indicators is presented in **Table J-3** below.

Table I-3 Field Data Quality Indicators

DQI	Item	Conformance/Comments
Completeness Percentage of useable data from sampling episode (data 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**
Representativeness Confidence the data is representative of each media present on the site.	Appropriate media sampled according to SAQP	**Yes**
	Each media identified in SAQP sampled	**Yes**
Precision Quantitative measure of the variability (or reproducibility) of data.	Sampling/laboratory protocols appropriate and complied with	**Yes**
Accuracy (bias) Quantitative measure of the closeness of reported data to the true value.	Sampling/laboratory protocols appropriate and complied with	**Yes**

I2.3 Conclusion for the field QA/QC

All samples, including field QC samples, were transported to the primary and secondary laboratories under strict Chain-of-Custody conditions and appropriate copies of relevant documentation were included in the respective reports.

The overall completeness of documentation produced under the field program was considered to be adequate for the purposes of drawing valid conclusions regarding the environmental condition of the site.

Based on the results of the field QA/QC data, EI considers the field QA/QC program carried out during the investigation to be appropriate and the results to be acceptable.

I2.4 Laboratory QA/QC

Primary and intra-laboratory duplicate samples were analysed by SGS located in Alexandria NSW and inter-laboratory duplicate samples were 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 below.

Table I-4 Laboratory Data Quality Indicators

DQI	Item	Conformance/Comments
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 may be considered to be 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 (the confidence (expressed qualitatively) that data are representative of each media present on the site)	All key samples analysed according to SAQP in the proposal.	**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**

DQI	Item	Conformance/Comments
Accuracy (bias) (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 matrix spike duplicates (MSD)	**Yes**
	Analysis of surrogate spikes	**Yes**
	Analysis of reference materials	Not applicable
	Analysis of laboratory control samples	**Yes**

Overall, it is considered that the laboratory data quality objectives for this project have been achieved.

I2.5 Conclusions on Laboratory QA/QC

Based on the laboratory QA/QC results EI considers that the data generally confirms the analytical results for the various phases of the laboratory works were valid and useable for interpretation purposes.

I2.6 Summary of Project QA/QC

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation works were consistent with EI protocols and were found to meet the DQOs for this project. It is therefore considered that the data is sufficiently precise and accurate and that the results can be used for interpretative purposes.