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URBAN APARTMENTS PTY LTD



Detailed Site Investigation

160-172 Lord Sheffield Circuit, Penrith NSW

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31 October 2022

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EXECUTIVE SUMMARY

Urban Apartments Pty Ltd ('the client') engaged EI Australia Pty Ltd (EI) to complete a Detailed Site Investigation (DSI) of 160-172 Lord Sheffield Circuit, Penrith NSW ('the site'), in order to assess the nature and degree of on-site contamination associated with current and former uses of the property.

The proposed development will involve the construction of a ten storey, mixed commercial and residential apartment building, overlying a three-level basement car park.

Objectives

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

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

Findings

The key findings of this DSI were as follows:

- The available historical information indicates that the site has been mainly vacant land with a portion of the land used for storage and an access way until 2016. Since that time, the land was partly used as construction material storage. Based on the surveyed business directories, no commercial and/or industrial activities operated at the site.
- Surrounding land use in the north of the site were mostly light industrial until 1994 to 2002, and residential/ commercial land use in the southern surrounding. However, since these areas are generally in downgradient with distance >500m, activities such as motor garages, service stations and dry cleaners are unlikely to have impacted the site by way of mobile contamination.
- The site was free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site was not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- Visual evidences of gross contamination, including fragments of fibre cement sheet (FSC), were not observed on any part of the site. No suspicious odours were detected during the site inspection, or during any of the field (sampling) works.
- There was no evidence that underground storage tanks (USTs) were present on the site. No above-ground storage tanks (ASTs) were identified.
- The site lithology was generalised as layers of anthropogenic gravelly sandy CLAY fill (to a maximum depth of 1.3 m below ground level (BGL)), overlying natural (silty) CLAY, followed by gravelly SAND and bedrock.
- Groundwater was gauged and found to be between 5.58 mBGL and 6.26 mBGL.
- The potential for acid sulfate soil (ASS) to be present on the site was deemed low (LotSearch, 2022).

- An assessment of the collected soil samples against adopted health-based criteria (NEPC, 2013) for proposed residential property including commercial units at the ground level and proposed landscaped areas. All analytes met the adopted guidelines, with the exception of;
  - Carcinogenic PAHs (as B(α)P TEQ)) detection exceeded adopted health-based criterion within the shallow fill soil layer, at location BH108. Statistical analysis found that the 95% Upper Confidence Limit (UCL) of the average concentration of Carcinogenic PAHs in fill samples (2.357mg/kg) did not exceed adopted HIL-B (4 mg/kg) criterion.
- An assessment of the collected groundwater samples against the NEPC (2013) and ANZG (2018) criteria indicated the concentrations of some priority metals exceeded adopted criteria:
  - Copper (Cu) at BH101M, BH102M, BH103M and BH104M,
  - Nickel (Ni) at BH104M, and
  - Zinc (Zn) at BH101M, BH103M and BH104M.
- However, the metal concentrations were consistent with natural (background) conditions in urban environments, and therefore local groundwater conditions were not considered to pose a risk to human health, or the environment, at least with respect to the identified contaminants of concern.

Based on the findings of this DSI and with due consideration of EI's Statement of Limitations (**Section 11**), it was concluded that the potential for site contamination is low. The site was deemed suitable for the proposed development subject to the recommendations presented in **Section 10**.

TABLE OF CONTENTS

Page Number

EXECUTIVE SUMMARY **III**

1. INTRODUCTION **1**
1.1 Background and Purpose 1
1.2 Proposed Development 1
1.3 Regulatory Framework 1
1.4 Project Objectives 2
1.5 Scope of Works 2
Desktop Study *2*
Fieldwork and Laboratory Analysis *2*
Data Analysis and Reporting *3*

2. SITE DESCRIPTION **4**
2.1 Property Identification, Location and Physical Setting 4
2.2 Surrounding Land Use 4
2.3 Regional Setting 5
2.4 Groundwater Bore Records and Local Groundwater Use 6
2.5 Site Walkover Inspection 6

3. SITE HISTORY AND SEARCHES **7**
3.1 Historical Aerial Review 7
3.2 EPA Online Records 10
3.2.1 Contaminated Land – Record of Notices under Section 58 of CLM Act (1997) *10*
3.2.2 List of NSW contaminated sites notified to EPA *10*
3.2.3 POEO Public Register *11*
3.3 Lotsearch Report 11
3.3.1 Historical Business Directories *11*
3.3.2 Liquid fuel facilities *12*
3.3.3 Dry Cleaners, Motor Garages & Service Stations *12*
3.3.4 Other Findings *13*
3.4 Previous Investigation and Searches 13

4. CONCEPTUAL SITE MODEL **15**
4.1 Summary of Site History 15
4.2 Predicted Subsurface Conditions 15
4.3 Potential Contamination Sources 15
4.4 PFAS Assessment 16
4.5 Emerging Chemicals 17
4.6 Contaminants of Potential Concern (COPCs) 17
4.7 Likelihood for Site Contamination 17

5. METHODOLOGY **19**

5.1 Sampling, Analytical and Quality Plan 19
5.2 Data Quality Objectives 19
5.3 Data Quality Indicators 23
5.4 Sampling Rationale 24
5.5 Assessment Criteria 24
5.6 Soil Sampling Methodology 26
5.7 Groundwater Investigation 27

6. DATA QUALITY ASSESSMENT 29
6.1 Data Quality Assessment 29
6.2 Quality Overview 30

7. RESULTS 31
7.1 Site Geology and Sub-surface Conditions 31
7.2 Field Observations 31
7.3 Laboratory Analytical Results 33
7.3.1 Soil Analytical Results 33
7.3.2 Groundwater Analytical Results 34

8. SITE CHARACTERISATION 36
8.1 Soil Characterisation 36
8.2 Groundwater Quality 36
8.3 Review of Conceptual Site Model 37
8.4 Data Gaps 37

9. CONCLUSION 38

10. RECOMMENDATIONS 40

11. STATEMENT OF LIMITATIONS 41

REFERENCES 42

ABBREVIATIONS 44

Table 2-1 Site Identification, Location and Zoning 4
Table 2-2 Local Land Use 4
Table 2-3 Regional Setting Information 5
Table 3-1 Summary of Aerial Photograph History 7
Table 3-2 Summary of Contaminated Sites Notified to the EPA 10
Table 3-3 Protection of the Environment Operations (POEO) 11
Table 3-4 National Liquid Fuel Facilities 12
Table 3-5 Dry cleaners, motor garages & service stations 12
Table 3-6 Summary of Previous Investigation Works and Findings 13
Table 4-1 PFAS Decision Tree 16
Table 4-2 Emerging or Controlled Chemicals 17
Table 4-3 Assessment of Potential Contamination Risks 18
Table 5-1 Summary of Project Data Quality Objectives 20
Table 5-2 Data Quality Indicators 23
Table 5-3 Adopted Investigation Levels for Soil and Groundwater 24

Table 5-4 Summary of Soil Sampling Methodology 26
Table 5-5 Summary of Groundwater Investigation Methodology 27
Table 6-1 Quality Control Process 29
Table 7-1 Generalised Subsurface Profile (m bgl) 31
Table 7-2 Summary of Soil Analytical Results 33
Table 7-3 Summary of Groundwater Analytical Results 34

Appendices

APPENDIX A -FIGURES

APPENDIX B -TABLES

APPENDIX C -PROPOSED DEVELOPMENT PLANS

APPENDIX D -SITE PHOTOGRAPHS (TAKEN 11 FEBRUARY 2022)

APPENDIX E -BOREHOLE LOGS

APPENDIX F -GROUNDWATER MONITORING EVENT FIELD NOTES 21 SEPTEMBER 2022

APPENDIX G -CHAIN OF CUSTODY FORMS AND SAMPLE RECEIPT ADVICES

APPENDIX H -LABORATORY ANALYTICAL REPORTS

APPENDIX I -QA/QC ASSESSMENT

APPENDIX J -LABORATORY QA/QC POLICIES AND DQOS

1. INTRODUCTION

1.1 Background and Purpose

EI Australia Pty Ltd (EI) was engaged by Urban Apartments Pty Ltd ('the client') to complete a Detailed Site Investigation (DSI) of 160-172 Lord Sheffield Circuit, Penrith NSW ('the site').

The site is located approximately 48km west of the Sydney central business district (CBD), within the Local Government Area (LGA) of Penrith City Council (**Figure 1, Appendix A**). It is comprised of three land (lot and deposited plan (DP) cadastral) parcels, identified as:

- Lots 3001, 3002 and 3011 in DP1184498.

The total area of the is 8,816m^2, as shown in **Figure 2, Appendix A**. At the time of this DSI, the entire site was fenced off vacant land (i.e. undeveloped and unoccupied), with the exception of Lot 3011 in DP1184498 (160 160-172 Lord Sheffield Circuit, Penrith) which was occupied as a community garden.

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

1.2 Proposed Development

Based on the supplied plans (**Appendix C**), the redevelopment of the site will involve

- Construction of a ten-storey mixed use building (encompassing an area of approximately 6500m^2) overlaying a three-level basement (encompassing an approximate area of 6500m^2) with approximate excavation depth of 9.5m.
- South eastern portion of the site will be dedicated to remain as a community garden (encompassing an approximate area of .650m^2), and

The basement Finished Floor Level (FFL) is proposed to be RL 18.15m and the maximum Bulk Excavation Level (BEL) is expected to be RL 17.65m at approximately 9.5 metres below the existing ground level (mBGL) to include an allowance for the basement slab. Locally deeper excavation might be required for footings, lift shafts, crane pads and service trenches.

1.3 Regulatory Framework

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

- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality;
- *Contaminated Land Management Act 1997*;
- *Environmental Planning and Assessment Act 1979*
- NSW EPA (2022) *Contaminated Land Sampling Design Guidelines*;
- NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme*- 3rd Edition;
- NSW EPA (2020) *Guidelines for Consultants Reporting on Contaminated Land*; and

- NEPC (2013) Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater;
- NEPC (2013) Schedule B(2) Guideline on Site Characterisation;
- Penrith Local Environmental Plan 2010;
- State Environmental Planning Policy (Resilience and Hazards) 2021

1.4 Project Objectives

The primary objectives of this investigation were to:

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

1.5 Scope of Works

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

Desktop Study

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

Fieldwork and Laboratory Analysis

- A detailed site walkover inspection;
- Construction of test boreholes at twenty (20) locations (BH101 to BH120), distributed in an approximate systematic grid pattern across accessible areas of the site;
- Multiple level soil sampling within fill and natural soils at each of the test bores;
- Conversion of three (3) of the test boreholes into groundwater monitoring wells (BH101M, BH102M and BH103M);and

- Completion of one groundwater monitoring event (GME), utilising the installed wells; and
- Laboratory analysis of selected soil and groundwater samples for the COPC.

Data Analysis and Reporting

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

2. SITE DESCRIPTION

2.1 Property Identification, Location and Physical Setting

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

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	160-172 Lord Sheffield Circuit, Penrith NSW
Location Description	Approximately 48km west of Sydney CBD. Bound by Lord Sheffield Circuit to the north, Penrith rail way station to the south and west, and a warehouse to the east.
Geographical Coordinates	Coordinates of the southern corner (under GDA2020-MGA56): Easting: 286645.042; Northing: 6313193.716. (Source: https://maps.six.nsw.gov.au/)
Site Area	8,280m^2 , (**Appendix C**) (Ref. SDG Pty Ltd , Ref: 8635, date 10 January 2022)
Cadastral Identification	Lot 3001 in DP1184498 Lot 3002 in DP1184498 Lot 3011 in DP1184498
State Survey Marks	Three State Survey marks are situated close to the site: SS186021: approximately 5m north-west, on Lord Sheffield Circuit SS186044: approximately 5m north, on Lord Sheffield Circuit SS180838: approximately 38m north-east, at the intersection of Avators Way and Lord Sheffield Circuit. (Source: https://maps.six.nsw.gov.au/)
LGA	Penrith City Council
Current Zoning	B2 - Local Centre (*Penrith Local Environmental Plan 2010*)

2.2 Surrounding Land Use

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

Table 2-2 Local Land Use

Direction	Land Use Description	Sensitive Receptor (distance from site)
North	Lord Sheffield Circuit, a two lane, asphalt-paved road with parking lanes followed by multi-storey residential apartment, with basements observed.	Pedestrians (immediately adjacent); Residents and visitors (approximately 20m north).

Direction	Land Use Description	Sensitive Receptor (distance from site)
South	Railway Corridor of the T1 Western Line, followed by the Great Western Highway, car parks, Penrith community service centre and TAFE NSW Penrith.	Sydney Trains commuters and workers (immediate adjacent) Local community members (approximately 110m south-west); TAFE students and staff (approximately 90m south-east).
East	Lot 10 in DP1159973 comprised of a number of derelict warehouses followed by numbers of residential dwellings.	Warehouse users (immediate adjacent); Residents and visitors (approximately 125m east)
West	Pedestrian access way for Penrith train station/ Community open space followed by vacant land lot 3003 in DP1184498.	Pedestrians and community open space user (immediate adjacent).

Sensitive land uses and environmental receptors within the vicinity of the site include local residents and the Nepean River (approximately 1.5km west).

2.3 Regional Setting

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

Table 2-3 Regional Setting Information

Attribute	Description
Topography	The site is located on the south side of Lord Sheffield Circuit with a mostly flat topography with slight gradient from south to north towards the Lord Sheffield Circuit. (Ref. Geotechnical Investigation 160 Lord Sheffield Circuit, Penrith NSW, E25358.G03_Rev1. Dated:23 September 2022; Google Earth assessed on 10th October 2022)
Site Drainage	Site drainage is likely to be consistent with the general slope (gentle slope from south to north) of the site. Runoff expected to be collected by stormwater pits on Lord Sheffield Circuit.
Regional Geology	Referenced from the Department of Mineral Resources Geological Map Penrith 1:100,000 Geological Series Sheet 9030 (DMR 1991) indicates that the site is underlain by gravel, sand, silt and clay. This is underlain by Bringelly Shale, consisting of shale, carbonaceous claystone, laminate, lithic sandstone and rare coal.
Soil Landscape	With reference to the NSW Soil and Land Information System, the site is underlain by the Richmond Alluvial Landscape (ri), comprising of quaternary terraces. Soils are generally poorly structured orange to red clay loams, clay and sands.
Acid Sulfate Soil (ASS) Risk	In accordance with the Penrith Local Environmental Plan 2010, the site is not located within any Acid Sulfate Soils (ASS) risk areas.
Nearest Water Feature	Nepean River (located approximately 1.5km west).
Inferred Groundwater Flow Direction	The inferred groundwater flow in the vicinity of the site is from east to west based on gauging and topographical extrapolations conducted by EI Australia during the groundwater monitoring event on 21st September 2022.

2.4 Groundwater Bore Records and Local Groundwater Use

An online search of registered groundwater bores was conducted by EI on 10 October 2022 through WaterNSW (Ref. https://realtimedata.waternsw.com.au/water.stm). No registered bores was identified within a 500 m radius of the site.

2.5 Site Walkover Inspection

Observations were recorded during a walkover inspection, soil sampling and monitoring well construction at the site on 6th September 2022 (summarised below), which was performed EI Australia and qualified sub-contractors. Photographs taken at the time are presented in **Appendix D**.

- The site was vacant land and was defined by a perimeter fence.).
- The site sloped gently from south to north.

The surface of the site was observed to be bare ground or covered in vegetation (>50% of the site area).There was no evidence of phytotoxicity.

- The railway corridor was identified approximately 10m to the south of the site, continuing along the entire southern boundary.
- No suspicious odours or visual evidences of (gross) contamination were observed at any parts of the site, including fragments of fibre cement sheeting (FCS).
- There was no evidence, by way of fill/dip points or vents, that underground storage tanks (USTs) were present on the site. No above-ground storage tanks (ASTs) were identified.
- A concrete paved entrance from the Lord Sheffield Circuit was in good conditions.
- Construction materials (timbers and polyester blocks) were stored on site.
- A community garden (Lot 3011 in DP 1184498) occupied the eastern strip along the eastern part of the site, and access was not available at the time of site inspection.

3. SITE HISTORY AND SEARCHES

3.1 Historical Aerial Review

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

Table 3-1 Summary of Aerial Photograph History

Aerial Photograph	Site description based on historical aerial photographs	Land Use
1950	The site appeared to be vacant and appeared to be used for open storage – possibly associated with the railway corridor. The surrounding area contained light industrial and cargo storage/ warehouse to the general north, and Rail corridor, commercial properties and residential dwellings to the general south. Railway infrastructure had already been developed to the south of the site.	Vacant/ Transportation
1965	The site appeared relatively unchanged from 1950 aerial photograph. Minor development of the surrounding residential and commercial areas had occurred.	Vacant/ Transportation
1970	The site appeared relatively unchanged from 1965 aerial photograph. Minor development of the surrounding residential and commercial areas had occurred.	Vacant/ Transportation
1975	The site appeared relatively unchanged from 1970 aerial photograph with the exception of a fenced up area of approx..500m^2 in the site south eastern corner Minor development of the surrounding residential and commercial areas had occurred.	Unknown / Transportation
1986	The site appeared relatively unchanged from 1978 aerial photograph and the fenced up area in the site south eastern corner remained intact. Minor development of the surrounding residential and commercial areas had	Unknown / Transportation

Aerial Photograph	Site description based on historical aerial photographs	Land Use
	occurred.	
1991	The site appeared relatively unchanged from 1986 aerial photograph and the fenced up area in the site south eastern corner remained intact. Minor development of the surrounding residential and commercial areas had occurred.	Unknown / Transportation
1994	The site appeared relatively unchanged from 1991 aerial photograph and the fenced up area in the site south eastern corner was removed bare earth / pavement area. Minor development of the surrounding residential and commercial areas had occurred. The adjacent lot of land west of the site had been developed from vacant land into a open car park and railway station access entrance.	Vacant/ Transportation
2002	The site appeared relatively unchanged from 1994 aerial. Majority of the light industrial facilities in the north of the site were removed between the period of 1994 to 2002. The warehouse/ light industrial area in the eastern adjacent of the site remained intact. Minor development of the surrounding residential and commercial areas had occurred.	Vacant/ Transportation
2009	The site was vacant, though features from open storage use remained.. Minor development of the surrounding residential and commercial areas had occurred.	Vacant
2015	The site appeared relatively unchanged from 2009 aerial photograph., with the exception of an additional paved footpath through the site western section (lot 3001, DP1184498). Major redevelopment work was carried out on the northern surrounding of the site where previously occupied by light industrial facilities. Major earthworks were carried out for further redevelopment and numbers of low density residential dewing were	Vacant

Aerial Photograph	Site description based on historical aerial photographs	Land Use
	constructed in this area. in this area.	
2016	Majority of the site vegetation removed and the site appeared to be used for storage of construction materials, minor stockpiles and sheds. Lord Sheffield Circuit road was constructed in the site northern immediate boundary since 2012. The northern surrounding area was in the process of major redevelopment with more low density residential dwellings being built since 2012 and number of high density residential development in the process. .	Storage (Lot 3002, 3001 DP1184498), Vacant (Lot 3011 DP1184498),
2018	Construction materials and sheds located at the site appeared to be removed, leaving the site western portion (Lot 3001 DP1184498) paved. The surrounding redevelopment were mostly completed since 2016.	Vacant
2022	The eastern portion of the site (lot 3002 DP 1184498) remained vacant grass land. Construction materials with minimal stockpiles appeared to be stored on the site western portion (lot 3001 DP 1184498), and The site far eastern portion (lot 3011 DP 1184498) appeared to be occupied as a community garden. Minor development of the surrounding residential and commercial areas had occurred.	Storage (Lot 3001 DP1184498), Vacant (Lot 3002 DP1184498), Recreational (Lot 3011 DP1184498).

In summary, the majority of the site appeared to be vacant and was partly used as a access way to the eastern adjacent warehouses on an adjacent area. (Lot 10 DP1159973) prior to 1978. A storage was constructed around 1978. . The observed buildings at the site south eastern corner remained on site until 1994. No significant changes were observed from 1994 to 2015. The site appeared to be used for construction material storage area for the surrounding redevelopments from 2016 until present. The community garden was observed from around 2018.

The site northern surrounding land uses have changed from light industrial to residential and commercial buildings, while the southern surround remains relatively unchanged and has been predominantly occupied by transportation (rail corridor immediately south) and commercial / residential properties.

3.2 EPA Online Records

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

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

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

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

3.2.2 List of NSW contaminated sites notified to EPA

A search through the List of NSW Contaminated Sites notified to the EPA under Section 60 of the CLM Act 1997 was conducted on 12th October 2022. This list is maintained by NSW EPA and includes properties on which contamination has been identified. Not all notified land is deemed to be impacted significantly enough to warrant regulation by the NSW EPA. The search identified six sites within 1,000 m of the site on the list as shown in **Table 3-2** Summary of Contaminated Sites Notified to the EPA below.

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

Suburb	Site Name	Address	Contamination Activity Type	Management Class
Penrith	Jet 60 Dry Cleaners	Shop 3 134-138 Henry Street	Unclassified	Regulation under CLM Act not required
Penrith	Former Dry Cleaners	Shop 3, 134-138 Henry Street	Other Industry	Regulation under CLM Act not required
Penrith	Lowes Petroleum (Former Mobil) Depot Penrith	174 Coreen Avenue	Other Petroleum	Regulation under CLM Act not required
Penrith	7-Eleven Service Station Penrith	30 Henry Street	Service Station	Regulation under CLM Act not required
Penrith	BP Express Service Station	Corner Coreen Avenue and Castlereagh Road	Service Station	Regulation under CLM Act not required
Penrith	Caltex Penrith Service Station	153 Coreen Avenue	Service Station	Regulation under CLM Act not required

From the above it is possible to verify that the EPA completed an assessment of the contamination on the six sites listed above and decided that regulation under the Contaminated Land Management Act 1997 was not required.

3.2.3 POEO Public Register

A search of the Protection of the Environment Operations (POEO) Act public register was conducted on 12th October 2022. The public register contains records relating to environmental protection licences, applications, notices, audits, pollution studies, and waste reduction programmes. The search found six records within 1,000m of the site, as detailed in **Table 3.3** below:

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

Organization	Address	Contamination Activity Type	Distance to site (m) and direction	Status
Sydney Trains	Railway Throughout NSW	Railway systems activities	3m West	Current
Bdd Milk Pty Ltd	2257 – 2265 CASTLEREAGH ROAD	Dairy processing	489m West	Current
Sydney Water Corporation	Castlereagh Road	Sewage treatment processing by large plants	822m North	Current
Boral Resources (NSW) Pty Ltd	Peachtree Road	Concrete works	734m North West	Delicensed but under EPA regulation
Total Concrete Solutions Pty Limited	261 Coombes Drive	Concrete works	770m East	Delicensed but under EPA regulation
Luhrmann Environment Management Pty Ltd	Waterways Throughout NSW	Application of Herbicides	616m North	Surrendered
Robert Orchard	Waterways Throughout NSW	Application of Herbicides	616m North	Surrendered
Sydney Weed & Pest Management Pty Ltd	Waterways Throughout NSW	Application of Herbicides	616m North	Surrendered
McConnell Dowell Constructor S (Aust) Pty Ltd	Jane Street And Mulgoa Road Infrastructure Upgrade , PENRITH, NSW 2740,	Railway systems activities	680m West	Surrendered
Gulf Western Premium Quality Lubricating Oils (Manufacturing) Pty Limited	Gulf Western Oil, 1 Coombes Drive, Penrith	Petroleum products and fuel production	753m North	Surrendered

3.3 Lotsearch Report

An environmental risk and planning report for the site was received from Lotsearch Pty Ltd during this DSI. This report, Lotsearch Reference LS035840 EL (dated 01 September 2022), is presented in full in **Appendix C**.

3.3.1 Historical Business Directories

Site was has historically vacant land with minimal transportation land use from 1950 up to 1978. From 1978 to 1994, part of the site in the south-eastern area was being fenced up for unknown purpose (potential storage area). The site remained vacant for the period of 1994 to 2016, and was being used for construction material storage ground since 2016 till present. However, no historical industrial or commercial activities were identified on-site.

There were several historical motor garages and dry cleaners located in close vicinity (within 500m). However, these activities are not likely to be hydraulically up-gradient to the site during the 1940s to 1990s.

3.3.2 Liquid fuel facilities

The search detailed the presence of five (5) sites within the buffer of 1,000m radius from the site, as detailed below in **Table 3-4**.

Table 3-4 National Liquid Fuel Facilities

Organization	Address	Distance to site (m) and direction	Status
Caltex	588 High Street	552m West	Operational
7-Eleven Pty Ltd	30 Henry Street	650m East	Operational
BP	2209-2213 Castlereagh Road	701m North	Operational
Caltex	2195 Castlereagh Road	784m North	Operational
Caltex	2195 Castlereagh Road	784m North	Operational

3.3.3 Dry Cleaners, Motor Garages & Service Stations

Historically, several motor garages and dry cleaners have been within proximity to the site as per summary table presented below. The full data set can be found in Lotsearch Reference LS035840 EL (dated 01 September 2022) in **Appendix D**.

Table 3-5 Dry cleaners, motor garages & service stations

Business Activity	Address	Distance to site (m) and direction	Year(s)
Motor Garages & Engineers	593 High St. Penrith	120m-West	1950 - 1961
Motor Garages & Service Stations	101-103 Henry St, Penrith. 2750	182m South	1979 - 1990
Motor service stations-petrol, oil, etc.	128 Henry St. Penrith	239m South	1970
Dry Cleaners & Pressers	1 Gaymark La., Penrith	243m South East	1982-1988
Motor Service Stations	429 High St. Penrith	321m South	1950
Motor Garages & Engineers	521 High St. Penrith	322m South	1950-1961
Dry Cleaners, Pressers & Dyers	511 High St., Penrith	325m South West	1950-1970
	503 High St. Penrith	325m South West	1950
	377 High St. Penrith	342m South East	1961-1970
	369 High St., Penrith	344m South East	1961
Motor Garages &/Or Engineers &/Or Service Stations	77 Station St., Penrith	340 South West	1950
	549 High St. Penrith	364m South West	1950
	470 High St. Penrith	380m South	1950
	333 High St., Penrith	400m South East	1970-1979
	520 & 524 High St. Penrith	402m South West	1961- 1970
	518 High St Penrith	402m South West	1950

3.3.4 Other Findings

Additional findings from searches of other environmental resources and plans recorded in Lotsearch report LS035840 EL (**Appendix D**) were as follows:

- The site or surrounding sites within 250m were not listed as part of a Defence 3 Year Regional Contamination Investigation Program.
- No former gasworks, or waste management were present within a 1km radius of the site.
- No properties that were part of the Department of Defence or EPA PFAS investigation / management programs were present within a 1km radius of the site (PFAS being per- and poly- fluoroalkyl substances).
- The site and its surroundings were not recorded as having a "naturally occurring asbestos potential".
- With respect to acid sulfate soil, the site and its surroundings are classified as low probability of occurrence area.
- Dryland salinity assessment data shows that the site is within an area of moderate salinity potential.
- No mining subsidence district was present within the surveyed area.
- No natural (e.g. bush fire) hazard applied to the site.

3.4 Previous Investigation and Searches

The following reports were provided to WI and reviewed during the preparation this DSI :

- EI (2022a). EI Australia*, Groundwater Take Assessment 160-172 Lord Sheffield Circuit, Penrith, Revision 0,* dated 31 August 2022.
- EI (2022b). EI Australia*, Geotechnical Investigation Report 160-172 Lord Sheffield Circuit, Penrith, Rev 1,* dated 23 September 2022*.*

A summary of the components of the above reports are provided in **Table 3-1**.

Table 3-6 Summary of Previous Investigation Works and Findings

Assessment Details	Project Tasks and Findings
EI Australia (2022a) *Groundwater Take Assessment*	
Lots Assessed	Lot 3001 in DP1184498; Lot 3002 in DP1184498; and Lot 3011 in DP1184498.
Purpose	"To provide an estimation of the groundwater take volumes required pumping out during the construction and operational stage of the development, estimation of the ground water drawdown as a result of the dewatering." EI (2022a).
Key Findings	Based on the groundwater monitoring well (BH4M) constructed by EI on-site, the groundwater level at the site is expected to be at RL 22.5m and is approximately 4.6m BGL given the surface ground level is at RL 27.15m.

Assessment Details	Project Tasks and Findings
EI (2022b) *Geotechnical Investigation Report*	
Lots Assessed	Lot 3001 in DP1184498; Lot 3002 in DP1184498; and Lot 3011 in DP1184498.
Purpose	To assess the likely site surface, sub-surface conditions, and anticipated geotechnical factors associated with the proposed development.
Key Findings	Based on the site work conducted by EI on 8th November and 13th December 2021 , the site stratigraphy observed during was generally: • A layer of 0.2m to 1.2m thick of fill material soil, overlying • Residual sandy clay, silty sand and sandy gravel; and • The depth to sandstone/ laminate/ shale bedrock is expected to be between 11.1 to 11.45 mBEGL.

4. CONCEPTUAL SITE MODEL

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

4.1 Summary of Site History

The available historical information indicated that the site had been vacant prior to 1978, and was partly used as transportation route to the adjacent warehouses. At least part of the site has been used for construction material storage since 2016 until present. Stockpiles and sheds were identified on site during the period. No evidence of building demolition was observed on the site.

Surrounding land uses were mostly light industrial in the north and commercial/ residential in the south. Therefore, industrial activities such as material processing, machinery maintenance and food processing may have caused minor impact to the site by way of mobile contamination.

4.2 Predicted Subsurface Conditions

Based on the testing borehole conducted by EI (2022) the site subsurface conditions were likely to comprise of gravelly clay, gravelly clayey sand and/or sandy clay fill (0.2-1.2m thickness), overlying residual clay, silty sand, sandy gravel and sandstone/ shale bedrock (from 3.5 to 6 mBGL onwards). The depth to groundwater was inferred to be greater than 4.6 mBGL.

The presence of silty clay soils and shale bedrock would generally inhibit vertical migration of any surface contaminants into the underlying aquifer. However, migration of contaminants from upgradient (offsite) sources via advection and diffusion in groundwater is possible.

4.3 Potential Contamination Sources

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

- The presence of (imported) filling materials of unknown origin and quality (especially beneath the site western section (lot 3002 DP1184498) where construction material stockpiles were stored);
- Unknown historical storage uses in the site south eastern corner (approximate 500m^2 area);
- Potential minor spillage of petrol / diesel and carry over from vehicle and machinery transportation through the site from the abjection land use activities;
- Migration of contamination from offsite (upgradient neighbouring) sources including the railway.

4.4 PFAS Assessment

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

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

Table 4-1 PFAS Decision Tree

Preliminary Screening	Probability of Occurrence[1]
Is the past or present site activity listed in the HEPA (2020) [2] as being an activity with risk of fire. If so list activity: Past commercial (automotive) activities included fuel and oil storage; Potential onsite service station containing fuel storage; Fire not known to have occurred on the site.	L
Is the past or present off-site activity upgradient or adjacent to the site listed in the HEPA (2020)[2] as being an activity with risk of fire. If so list activity	L
Did fire training involving the use of suppressants occur on-site?	L
Did fire training occur upgradient of or adjacent to the site? [3]	L
Have "fuel" fires ever occurred on-site? e.g. ignition of fuel (solvent, petrol, diesel, kero) tanks? Not known	L
Have PFAS been used in manufacturing or stored on-site? [4]	L
Could PFAS have been imported to the site in fill materials from a site with activity listed in HEPA (2018)?	L
Could PFAS-contaminated groundwater or run-off have migrated on to the site?	L
Is the site or adjacent sites listed in the NSW EPA PFAS Investigation Program? [5]	L
If the probability is medium or high in any of the rows, does the site analytical suite need to be optimised to include preliminary sampling and testing for PFAS in soil (including ASLP analysis) and waters?	No. PFAS not included as a COPC

Note 1 Probability: L – low (all necessary documentation has been reviewed and there is no recorded instance or compelling rationale); M – moderate (all necessary documentation has been reviewed and there is potential evidence of a recorded instance with compelling rationale); H – high (all necessary documentation has been reviewed and there is evidence of a recorded instance with compelling rationale).
Note 2 Activities listed in Appendix B of HEPA (2020).
Note 3 Runoff from upgradient PFAS use may impact surface water, soil, sediment and groundwater.
Note 4 PFAS is used wide range of industrial processes and consumer products, including in the manufacture of non-stick cookware, specialised garments and textiles, Scotchguard™ and similar products (used to protect fabric, furniture, leather and carpets from oils and stains), metal plating and in some types of fire-fighting foam. (https://www.nicnas.gov.au/chemical-information/factsheets/chemical-name/perfluorinated-chemicals-pfas)
Note 5 Refer to https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program. *Emerging Chemicals*

4.5 Emerging Chemicals

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

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

Table 4-2 Emerging or Controlled Chemicals

Chemicals of Concern (CCO or emerging)	Decision
Were aluminium smelter wastes used or stored on site (CCO, 1986)?	No
Do dioxin contaminated wastes (CCO, 1986) have the potential to impact the site?[1]	No
Were organotin products (CCO, 1989) used or stored on site?[2]	No
Were PCBs used or PCB wastes (CCO, 1997) stored on-site?[3]	No (unlikely)
Were scheduled chemicals or wastes (CCO, 2004) used or stored?[4]	No (unlikely)
Are other emerging chemicals suspected?[5]	No
If Yes to any questions, has site sampling suite been optimised to include sampling for these chemicals of concern?	No

Note 1 From burning of certain chemicals, smelting or chemical manufacturing or fire on or near the Site.
Note 2 From anti-fouling paints used or removed at boat & ship yards and marinas.
Note 3 From older transformer oils & electrical capacitors
Note 4 Twenty-four priority organochlorine pesticides and industrial by-products
Note 5 Other chemicals considered as emerging e.g. 1,4 dioxane (associated with some VOCs).

4.6 Contaminants of Potential Concern (COPCs)

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

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

4.7 Likelihood for Site Contamination

EI considered that there is potential for contamination to be present on site. Previous transportation land use (vehicle access) and storage, fill soils of unknown origin and quality, were considered to be the primary potential sources of contamination.

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

Table 4-3 Assessment of Potential Contamination Risks

Potential Source	COPC	Media	Sensitive Receptor	Transport Mechanism	Exposure Pathway	Likelihood of Exposure Pathway
Historical transportation and storage activities	HM, TRH, VOC (BTEX), PAH and asbestos	Soil Ground water	Site workers during construction[1]; Future site residents; Aquatic environment off-site; Future intrusive workers.	Leaching Site earthworks Erosion &Surface runoff Advection and diffusion in groundwater	Inhalation Dermal contact Ingestion Vapour intrusion	Low
Imported fill soils of unknown origin and quality	HM, TRH, VOC (BTEX), PAH, OCP, OPP, PCB and asbestos	Surface soil	Site workers during construction; Future site residents.	Site earthworks Environmental erosion Surface runoff	Inhalation of asbestos fibres (if present) Dermal contact Ingestion Vapour intrusion	Moderate
Historical application of pesticides	OPP, OCP	Surface soil	Site workers during construction; Future site residents.	Direct spraying Leaching Site earthworks Environmental erosion	Dermal contact Ingestion	Low
Potential run-off from railway line.	HM, TRH and BTEX	Soil	Site workers during construction; Future site residents.	Physical spread during earthwork/excavation	Accidental ingestion; Inhalation; and Dermal contact	Moderate
Migration of contaminants from off-site (upgradient) sources;	HM, TRH and VOC (BTEX)	Ground water	Site workers during construction; Future site residents; Aquatic environment; Future intrusive workers.	Leaching Advection and diffusion in groundwater	Inhalation of vapour Dermal contact Ingestion Biota uptake	Unlikely

[1] Site workers during construction are assumed to use personal protective equipment (PPE), as per SafeWork NSW regulations.

5. METHODOLOGY

5.1 Sampling, Analytical and Quality Plan

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

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

5.2 Data Quality Objectives

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

Table 5-1 Summary of Project Data Quality Objectives

DQO Step	Details
1. State the Problem Summarise the contamination problem that will require new environmental data and identify the resources available to resolve the problem; develop a conceptual site model.	The site was designated for high density, residential development. Detailed investigation was necessary to quantify any potential contamination and inform the future application to Council. The proposed development is generally equivalent to a generic NEPC (2013) land use scenario of residential with minimal opportunities for soil access The desktop study (CSM) indicated that the potential for site contamination was low to moderate, with previous storage or miscellaneous materials, and application of fill soils of unknown origin as contributing factors. This investigation was required to characterise the condition of the site soil, thereby enabling the developer to meet its obligations under Resilience and Hazards (2021).
2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that need to be made on the contamination problem and the new environmental data required to make them.	Based on the objectives outlined in **Section 1.4**, the decisions that needed to be made were: Have the nature, extent and source of any soil and/or groundwater impacts on-site been defined? What impact do the site specific, geologic and hydrogeological conditions have on the fate and transport of any contaminants that may be present? Does the level of impact, coupled with the fate and transport of identified contaminants, represent an unacceptable risk to identified human and/or environmental receptors on- or off- site? Does the collected data provide sufficient information to allow the suitability of the site to be determined, or selection and design of an appropriate remedial strategy, if necessary? If the data does not provide sufficient information, what data gaps require closure to enable the suitability of the site to be determined, or selection and design of an appropriate remedial strategy?
3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision and specify which inputs require new environmental measurements.	Inputs to the decision making process included: Proposed development plans and land use; National and NSW EPA guidelines endorsed under the *NSW Contaminated Land Management Act 1997*; Observations obtained from an intrusive investigation in locations and to depths deemed appropriate for assessment purposes (or prior auger refusal); Sampling to verify the presence of on-site contamination and to evaluate the potential risks to sensitive receptors; and Laboratory analysis of selected samples for the contaminants of concern;. At the end of the assessment, a decision had to be made regarding whether the environmental conditions were suitable for the proposed redevelopment, or if additional investigations, / remediation or management were required to make the site suitable.

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

DQO Step	Details
7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data) Identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs.	To achieve the most resource-effective sampling and analysis design and generate data that satisfied the DQO: Written instructions were issued to guide field personnel in the required fieldwork activities. Sampling was conducted at 20 boreholes (BH101M-BH120), placed in accessible parts of the site; Sampling was performed in accordance with NSW EPA guidelines and EI standard operating procedures (SOPs); Discrete fill and natural samples were analysed for the contaminants of concern; and Review of the results, to determine if further sampling was warranted (that being where soil concentrations were found to exceed the adopted criteria endorsed by the NSW EPA, relevant to the proposed land use(s)).

5.3 Data Quality Indicators

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

Table 5-2 Data Quality Indicators

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

5.4 Sampling Rationale

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

- Sampling *in situ* fill and natural soils from 20 locations (BH101 to BH120), located across accessible parts of the site, in compliance with the minimum density recommended under the NSW EPA (2022) *Sampling Design – Part 1*for an area of 8,816m^2 (0.88 ha); and
- Laboratory analysis of representative samples for the identified contaminants of concern.

Note that access to the community garden (approx.1,138 m^2) was not provided and intrusive investigation was not undertaken.

5.5 Assessment Criteria

The assessment criteria adopted for this project are outlined in **Table 5-3**. These were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the exposure scenario that is expected for various parts of the site, the likely exposure pathways and the identified potential receptors.

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

Table 5-3 Adopted Investigation Levels for Soil and Groundwater

Medium	Guidelines	Rationale
Soil	NEPC (2013) HILs, HSLs, EILs, ESLs and Management Limits for TRH	**Soil Health-based Investigation Levels (HILs)** NEPC (2013) *HIL-B* thresholds for residential settings with limited accessible soils. **Soil Health-based Screening Levels (HSLs)** NEPC (2013) *HSL-D* thresholds for vapour intrusion at multi-level storey with non-residential use in the ground floor/basement were applied to assess potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene per NEPC (20103) Schedule B1 Section 2.4.8. **Asbestos Health Based Screening Levels** Presence / absence of asbestos (not-detected) were utilised for preliminary screening purposes. The WADoH (2009)) assessment criteria, as presented in NEPM (2013), were not adopted during this investigation. **Ecological Investigation / Screening Levels (EILs / ESLs)** NEPC (2013) EILs/ESLs for urban residential and public open space land use scenarios were adopted, to assess the potential impact to proposed landscaping areas, where plants could be exposed to soils and where precipitation may result in subsurface infiltration and resulting leaching of soil impacts to groundwater. The derived EILs were determined by the addition of site specific Added Contaminant Limit and the Ambient Background Concentration for a high traffic NSW suburb. The adopted ESL were based on soil texture. **Management Limits for Petroleum Hydrocarbons** Where the HSLs and ESLs for petroleum hydrocarbons were exceeded, sample results were also assessed against the NEPC (2013) *Management Limits* for the TRH F1-F4 fractions, to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards and adverse effects on buried infrastructure.

Medium	Guidelines	Rationale
Groundwater	ANZG (2018) GILs for Fresh Waters	**Groundwater Investigation Levels (GILs) for Fresh Waters** ANZG (2018) provides GILs for typical, slightly-moderately disturbed aquatic ecosystems, Trigger Values (TVs) for the 95% level of protection of aquatic ecosystems; however, the 99% TVs were applied for the bio-accumulative analytes
	NEPC (2013) Groundwater HSLs for Vapour Intrusion	**Health-based Screening Levels (HSLs)** The NEPC (2013) groundwater HSL for vapour intrusion were used to assess potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts. The *HSL-D* thresholds applied per NEPC (20103) Schedule B1 Section 2.4.8 . .
	NHMRC (2022) Recreational Criteria	**Recreational Criteria** Where no criteria are available, the lowest value from the NHMRC (2022) Drinking Water Human criteria (multiplied by a factor of 10) will be used to represent a recreational exposure of surface water bodies. The closest surface water body is the Nepean River (approx. 1.5 km west of the site).

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

5.6 Soil Sampling Methodology

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

Table 5-4 Summary of Soil Sampling Methodology

Activity/Item	Details
Fieldwork	The field works were conducted on 6 September 2022. Prior to commencement, the site services were surveyed by a qualified services locator. Review of plans supplied by Dial-Before-You-Dig was also performed.
Investigation Method	Test bores were advanced using a ute-mounted drilling rig, fitted with solid flight augers. Borehole details are presented in the detailed logs attached in **Appendix E**. Boreholes BH101, BH1014 and BH117 were converted into groundwater monitoring wells.
Soil Logging	Drilled soils were classified in the field with respect to lithological characteristics and evaluated on a qualitative basis for odour and visual signs of contamination. Soil classifications and descriptions were based on Unified Soil Classification System (USCS) and Australian Standard (AS) 1731 - 2017. Soil descriptions are noted in the borehole logs presented in **Appendix E**.
Sample Collection	▪ Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars. ▪ 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.
Decontamination Procedures	Soil samples were collected using grab/dry methods and placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars using dedicated nitrile gloves. Blind field duplicates were separated from the primary samples and placed into glass jars.
Sample Preservation and Transport	Samples were stored in chilled (ice brick-filled) chests, whilst on-site and in transit to the laboratory, which was performed under strict Chain-of-Custody (COC) conditions. Copies of the completed COC documentation (used to track sample movements) and laboratory Sample Receipt Advice (SRA) forms are provided in **Appendix H.**
Management of Soil Cuttings	Soil cuttings were used as backfill for completed boreholes, with the exception of monitoring wells (BH101, BH1014 and BH117) which were backfilled using a combination of annular graded sand filter, granular bentonite and grout (see **Table 5-7**).
Laboratory Analysis and Quality Control	Primary soil samples were analysed by SGS and Envirolab for the contaminants of concern. All samples were analysed within the required holding period, as documented in the corresponding laboratory reports. However, holding period exceeded for four analysis due to additional analysis requirement (**Appendix I**). In addition to the split (inter-laboratory) field duplicate (analysed by Envirolab), QC testing comprised one blind (intra-laboratory) field duplicate, an equipment rinsate blank, a laboratory-prepared, trip spike soil sample and a laboratory-prepared, trip blank soil sample, all analysed by SGS.
Quality Control & Laboratory Analysis	Soil samples were submitted for analysis to SGS Laboratory (SGS) (primary laboratory). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab) (secondary laboratory). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes, as discussed in **Section 6**.

5.7 Groundwater Investigation

The groundwater investigation works conducted at the site are described in **Table 5-7**. Monitoring well locations are illustrated in **Figure A.2**.

Table 5-5 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Three (3) groundwater monitoring wells (BH101M, BH102M, BH103M) were installed on 6 September 2022. ,. The wells (BH101M, BH102M, and BH103M) were subsequently developed on the same day (6 September 2022), following drilling, to remove any water and/or seepage following drilling. Groundwater level gauging, field testing and sampling of three new wells (BH101M, BH102M, BH103M) and one existing well (BH104M previously installed on 8 November 2021) was conducted on 21^{t} September 2022.
Well Construction	▪ On-site test bores were constructed to the following depths: ‣ BH101M: 7.8 mBGL (screen interval at 4.7 – 7.7mBGL) ‣ BH102M: 6.1 mBGL (screen interval at 3.1 –6.1 mBGL) ‣ BH103M: 7.6 mBGL (screen interval at 4.6 – 7.6 mBGL). Well construction was in general accordance with the standards described in NUDLC (2012) and involved the following **(Appendix E):** ▪ 50mm, Class 18 uPVC, threaded, machine-slotted screen and casing; ▪ Base and top of each well was sealed with a uPVC cap; ▪ Annular, graded sand filter to approximately 300 mm above top of screen interval; ▪ Granular bentonite was applied above annular filter to seal the screened interval; ▪ Cuttings backfilled to just below ground level; and ▪ Surface completion was comprised of a stick-up through the ground surface.
Well Development	Well development was conducted by drilling staff following installation on 6 September, 2022. Well development was considered successful upon purging three times the well volume or until dry.
Well Gauging	Monitoring wells were gauged for standing water level (SWL, depth to groundwater) prior to field testing and sampling event on 21st September 2022. Gauging was conducted using a water/oil interface probe.
Well Purging& Field Testing	Groundwater sampling was conducted using a MicroPurge system incorporating a low density poly-ethylene (LDPE) pump bladder, and a Teflon-lined LDPE sample delivery tube for the rest of the monitoring well locations. Field measurement of water quality parameters was conducted on purged groundwater with a water quality meter (Hanna Multi Parameter 9829) positioned within a sample jar. Groundwater parameters tested in the field were Dissolved Oxygen (DO), Electrical Conductivity (EC), Oxidation-Reduction Potential (ORP), Temperature and pH. The measured parameters were recorded onto a field data sheet (**Appendix M**), along with the purged water volume at the time of measurement.

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

6. DATA QUALITY ASSESSMENT

6.1 Data Quality Assessment

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

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

Table 6-1 Quality Control Process

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

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

6.2 Quality Overview

On the basis of the field and analytical data validation procedure employed, the overall quality of 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). Zinc result RPD of groundwater triplicate (53.8%) were slightly above the acceptable range (30% to 50%), however is considered to have minimal impact on the overall data quality

7. RESULTS

7.1 Site Geology and Sub-surface Conditions

Twenty (20) boreholes (BH101M to BH120) were constructed in accessible areas of the site. Three (3) of the boreholes (BH101, BH114, and BH117) were converted to monitoring wells (BH101M, BH102M and BH103M).

The general site geology encountered during the drilling of the soil investigation boreholes was a layer of anthropogenic filling overlying residual clays, followed by sandy gravel/ sand, followed by weathered shale/ sandstone bedrock.

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

Table 7-1 Generalised Subsurface Profile (m bgl)

Layer	Generalised Description	Depth to top of layer (m bgl)	Average thickness (m)
Fill	Overall the fill at the drilled locations was found to have average thickness of 1.0 m. The fill material mainly comprised of gravelly sandy CLAY, gravelly SAND, medium plasticity, coarse grain size, sub angular to angular. No odours or staining were observed.	0.0	1.0
Natural CLAY	Soil was predominately clay with medium plasticity. No odours or staining noted.	0.2 -1.3	4.3
Natural clayey silty SAND	Soil was predominately clayey silty sand fine to medium grained sand. No odours or staining noted.	3.5 – 6.8	2.35
Sandy GRAVEL	Sandy gravel; fine to coarse, no odours or staining.	6.0 – 8.1	5.7
Bedrock (Sandstone/ Shale)	Shale, dark grey and pale grey; no odours or staining.	11.1 – 14.5	-

7.2 Field Observations

Soil samples were obtained and analysed from bores at various depths ranging between 0 to 1.8 mBGL. All soil samples collected were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, FCS fragments, ash, and charcoal) and the following observations were noted:

- No odours were identified during the investigation;
- Some sub-angular to angular gravels were reported within fill materials;

- No fragments of FCS were observed in any of the examined soils;
- No ash or slag was observed in any of the examined soils except for BH112, where minor slag was identified in the fill material, and
- No visible evidence of potential or actual ASS (such as pale yellow deposits/coatings of jarosite), was observed in any of the bore cuttings.

7.3 Groundwater Monitoring Event

7.3.1 Monitoring Well Construction

Four monitoring wells (BH101M, BH102M and BH103M) were installed within the site boundary in addition to the existing groundwater monitoring well BH4M to investigate the onsite and offsite potential for groundwater contamination within the site and migration of contaminants off-site. No existing onsite groundwater monitoring wells were observed.

Well construction details for the four installed groundwater monitoring wells are summarised in **Table 7-2** and in **Appendix D.** The depth of well construction was limited by refusal on sandstone during drilling of boreholes.

Table 7-2 Groundwater Monitoring Well Construction Details

Well ID	Well depth (mBGL)	SWL (mBTOC)	Ground Level (mRL est.)	RL (est.) (TOC)	SWL (mRL est.)	Screen Interval (m BGL)	Lithology Screened
BH101M	7.46	7.23	27.50	28.51	21.28	5.8 - 8.8	Clay
BH102M	6.18	6.6	27.10	28.12	21.52	4.12 – 7.12	Clay
BH103M	7.42	7.1	27.51	28.51	21.41	5.6 – 8.6	Clay
BH4M	10.80	6.72	27.54	28.00	21.28	4.9 – 10.9	Clay/Sand/Gravel

Notes:
Note 1 m BGL = metres below ground level.
Note 2 RL (TOC) – Reduced Level, estimated elevation at TOC in metres relative to Australian Height Datum (m AHD) from the provided survey plan.
Note 3 † WL - Calculated groundwater level, in m AHD (calculated as estimated RL – SWL).

7.4 Field Observations

One GME was conducted by EI on 21 September 2022 to sample all wells. Groundwater was evaluated in the field on the basis of odour and visual signs of contamination, with the following observations noted:

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

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

Table 7-3 Groundwater Field Data (21/09/2022)

Well	SWL (mBGL)	DO (mg/L)	pH	EC (µS/cm)	T (°C)	ORP[1] (mV)
BH101M	6.22	0.00	6.27	8,614	21.45	325.9
BH102M	5.58	1.68	7.52	4,152	22.72	323.4

Well	SWL (mBGL)	DO (mg/L)	pH	EC (µS/cm)	T (°C)	ORP[1] (mV)
BH103M	6.10	0.00	6.18	7,121	22.28	315.3
BH4M	6.26	0.00	5.60	8,961	21.48	319.6

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

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

- Oxygen depleted;
- Acidic to neutral;
- Brackish (EC 4,152 – 8,961 µS/cm)
- Oxidising (315.3 to 325.9 mV)

Standing water levels (SWL) measured at the wells collected during this GME varied from 5.58 to 6.26 mBGL. The water levels within the groundwater monitoring wells is showing a fair flat water level however, the groundwater flow direction was inferred to be east towards Nepean River.

7.5 Laboratory Analytical Results

7.5.1 Soil Analytical Results

A summary of the soil analytical results for the tested (representative) soil samples is presented in **Table 7-2**. More detailed tabulation of results, showing the concentrations for individual samples alongside the adopted soil criteria, is presented in **Table 1, Appendix B**. The corresponding laboratory analytical reports are presented in **Appendix H**.

Table 7-4 Summary of Soil Analytical Results

Number of Samples	Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Sample(s) Exceeding SILs
Metals				
31	Arsenic	4	19	None
31	Cadmium	<0.3	<0.3	None
31	Chromium	5.1	21	None
31	Copper	14	120	None
31	Lead	8	49	None
31	Mercury	<0.5	0.11	None
31	Nickel	2.4	15	None
31	Zinc	14	86	None
PAH				
31	Naphthalene	<0.1	<0.1	None
31	Benzo(a)pyrene	<0.1	4.9	None
31	Carcinogenic PAHs (as B(a)P TEQ)	<0.3	7.4	BH108_0.4-0.5 (HIL B)[3]

Number of Samples	Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Sample(s) Exceeding SILs
31	Total PAH	<0.8	64	None
BTEX				
31	Benzene	<0.1	<0.1	None
31	Toluene	<0.1	<0.1	None
31	Ethyl benzene	<0.1	<0.1	None
31	Xylenes (total)	<0.3	<0.3	None
TRH				
31	F1	<25	<25	None
31	F2	<25	<25	None
31	F3	<90	250	None
31	F4	<120	<120	None
Pesticides				
19	OCP	<1	<1	None
19	OPP	<1.7	<1.7	None
PCB				
19	Total PCB	<1	<1	None
Asbestos				
31	Asbestos (Presence/Absence)	Absent	Absent	None

Note 1 Trigger value exceedance detected for EIL. Site specific EIL calculated from NEPM 2013 EIL.
Note 2 Trigger value exceedance detected for HIL A&B. The limit value derived from CRC Care Report No 39 Table 11.

7.5.2 Groundwater Analytical Results

A summary of laboratory results showing test sample quantities, maximum analyte concentrations and samples found to exceed the GILs, are presented in **Table 7-5**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted groundwater criteria are presented in **Table 3, Appendix B**.

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

Table 7-5 Summary of Groundwater Analytical Results

No. of primary samples	Analyte	Min Conc. (µg/L)	Max Conc. (µg/L)	Samples exceeding investigation levels
Metals				
4	Arsenic	<1	<1	None
4	Cadmium	<0.1	0.2	None
4	Chromium (Total)	<1	1	None
4	Copper	2	2	ANZG -Fresh Water -1.4 µg/L

No. of primary samples	Analyte	Min Conc. (µg/L)	Max Conc. (µg/L)	Samples exceeding investigation levels
				GW-BH101M (2 µg/L) GW-BH102M (2 µg/L) GW-BH103M (2 µg/L) GW-BH104M (2 µg/L)
4	Lead	<1	<1	None
4	Mercury	<0. 1	<0. 1	None
4	Nickel	4	16	ANZG -Fresh Water -11 µg/L GW-BH104M (16 µg/L)
4	Zinc	<5	22	ANZG -Fresh Water -8 µg/L GW-BH101M (2 µg/L) GW-BH103M (2 µg/L) GW-BH104M (2 µg/L)
PAHs				
4	Naphthalene	<0.1	<0.1	None
4	Benzo(a)pyrene	<0.1	<0.1	None
4	Total PAH	<1	<1	None
BTEX				
4	Benzene	<0.5	<0.5	None
4	Toluene	<0.5	<0.5	None
4	Ethyl benzene	<0.5	<0.5[8]	None
4	m/p-xylene	<1	<1	None
4	o-xylene	<0.5	<0.5	None
TRHs				
4	F1 [1]	<50	<50	None
4	F2 [2]	<60	<60	None
4	F3 [3]	<500	<500	None
4	F4 [4]	<500	<500	None
VOCs				
4	Total VOC	<10	<10	None

To obtain F1, subtract the sum of BTEX concentrations from the C_6-C_{10} fraction.
To obtain F2, subtract Naphthalene from the >C_{10}-C_{16} fraction.
F3 -(C_{16}-C_{34}).
F4 -(C_{34}-C_{40}).
Note 1: Samples were analysed for total Chromium.

8. SITE CHARACTERISATION

8.1 Soil Characterisation

With reference to **Tables 7-2** and **Table 2, Appendix B**, all boreholes (BH101 to BH120) were assessed against the adopted HIL-B/HSL-A&B criteria, being underneath the proposed building footprint. Concentrations of contaminants of concern were reported below the adopted criteria for human health, except for;

- Carcinogenic PAHs (as BaP TEQ) in shallow fill sample BH108_0.4-0.5 reported at a concentration of 7.4 mg/kg which exceeded adopted health-based criterion (HIL-B, 4 mg/kg) in the (g)

However, the 95% Upper Confidence Limit (UCL) calculation of the Carcinogenic PAHs TEQ from the collected fill samples data set (2.357mg/kg) shows no exceedance above the adopted HIL-B (4 mg/kg) criteria. See **Table 1, Appendix B** for full sample data set and the calculation of the 95% UCL.

The community garden (the thin strip along the eastern boundary of the site) was considered to not pose a risk due to the low risk activities occurred (gardening activities) and also the presence of four borehole locations close by.

8.2 Groundwater Quality

Groundwater investigation was undertaken at four (4) monitoring well locations (BH101M, BH102M BH103M and BH104M).in the site.

Monitoring wells were constructed with a 1.0 m stick up pipe section. Standing water levels (SWLs) were recorded at 6.22 mBGL (BH101M), 5.58 mBGL (BH102M), 6.1 mBGL (BH103M), and 6.26 mBGL (BH104M)

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

Metals

- Concentrations of priority metals were reported exceeding the adopted freshwater GILs (ANZG (2018)):
  - Copper (Cu) at BH101M, BH102M, BH103M and BH104M,
  - Nickel (Ni) at BH104M, and
  - Zinc (Zn) at BH101M, BH103M and BH104M.

The concentrations of metals reported in groundwater were relatively low and generally consistent for each well. The reported concentrations in soil were low, indicating that contribution from the site was unlikely. The reported concentrations are consistent with typical urban background conditions. All samples were in compliance with the adopted recreational criteria unlikely to pose a risk to the receptors.

8.3 Review of Conceptual Site Model

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

The degree of contamination identified in subsurface soil and groundwater during the investigation of accessible areas of the subject site can be considered low, resulting in low associated human health risks.

Moreover, the proposed development includes a multilevel level basement across the site footprint, which will require the removal and offsite disposal of the remaining fill from the site along with a substantial amount of natural soil and bedrock, to be deemed surplus material.

8.4 Data Gaps

Additional intrusive soil sampling and analysis were required to better assess the contamination risks (i.e. fully determine whether the soil within Lot3011 DP1184498 presented an unacceptable contamination risk to the identified receptors). The gaps, or decisions, requiring closure were:

- Soil within Lot 3011 DP1184498 (community garden) which was not accessible during this investigation;
- Soil outside the building footprint area (area along the southern and eastern site boundary) which was not accessible during this investigation, and

9. CONCLUSION

The site identified as 160-172 Lord Sheffield Circuit, Penrith was the subject of a DSI, conducted in order to assess the nature and degree of on-site contamination.

The key findings of this DSI were as follows:

- The available historical information indicates that the site has been mainly vacant land with a portion of the land used for storage and an access way until 2016. Since that time, the land was partly used as construction material storage. Based on the surveyed business directories, no commercial and/or industrial activities operated at the site.
- Surrounding land use in the north of the site were mostly light industrial until 1994 to 2002, and residential/ commercial land use in the southern surrounding. However, since these areas are generally in downgradient with distance >500m, activities such as motor garages, service stations and dry cleaners are unlikely to have impacted the site by way of mobile contamination.
- The site was free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site was not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- Visual evidences of gross contamination, including fragments of FCS, were not observed on any part of the site. No suspicious odours were detected during the site inspection, or during any of the field (sampling) works.
- There was no evidence that underground storage tanks (USTs) were present on the site. No above-ground storage tanks (ASTs) were identified.
- The site lithology was generalised as layers of anthropogenic gravelly sandy CLAY fill (to a maximum depth of 1.3 mBGL), overlying natural (silty) CLAY, followed by gravelly SAND and bedrock.
- Groundwater was gauged and found to be between 5.58 mBGL and 6.26 mBGL.
- The potential for ASS to be present on the site was deemed low (LotSearch, 2022).
- An assessment of the collected soil samples against adopted health-based criteria (NEPC, 2013) for proposed residential property including commercial units at the ground level and proposed landscaped areas. All analytes met the adopted guidelines, with the exceptions of;
    - Carcinogenic PAHs (B(α)P TEQ)) detection exceeded adopedt health-based criterion within the shallow fill soil layer, at location BH108.Statistical analysis found that the 95% Upper Confidence Limit (UCL) calculation of the Carcinogenic PAHs TEQ from the collected fill samples data set (2.357mg/kg) shows no exceedance above the adopted HIL-B (4 mg/kg) criteria.
- An assessment of the collected groundwater samples against the NEPC (2013) and ANZG (2018) criteria indicated the concentrations of priority metals were exceeding the criteria in:
    - Copper (Cu) at BH101M, BH102M, BH103M and BH104M,
    - Nickel (Ni) at BH104M, and
    - Zinc (Zn) at BH101M, BH103M and BH104M.
- However, the metal concentrations were consistent with natural (background) conditions in urban environments, and therefore local groundwater conditions were not considered to

pose a risk to human health, or the environment, at least with respect to the identified COPC.

Based on the findings of this DSI and with due consideration of EI's Statement of Limitations (**Section 11**), it was concluded that the potential for site contamination is low. The site was deemed suitable for the proposed development subject to the recommendations presented in **Section 10**.

10. RECOMMENDATIONS

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

- Preparation of a waste management plan to classify any waste and surplus material (including potential virgin excavated natural material - VENM) to be removed from the site, in accordance with the NSW EPA (2014) Waste Classification Guidelines, Protection of the Environment Operations Act 1997, and Work Health and Safety Regulation 2017;
- Assessment of any soil/fill material imported onto the site. Imported soil must be classified as virgin excavated natural material (VENM) or have a classification certificate indicating it is suitable for the proposed land use;
- Preparation of an unexpected finds protocol (UFP) 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 applicable NSW EPA legislation and guidelines.

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

11. STATEMENT OF LIMITATIONS

This report has been prepared for the exclusive use of Urban Apartments 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 Urban Apartments 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 previous assessments conducted on site, regulatory agencies (e.g. Council, NSW EPA), statements from sources outside of EI, or developments resulting from situations outside the scope of works of this project.

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

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

This report was prepared for Urban Apartments 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.

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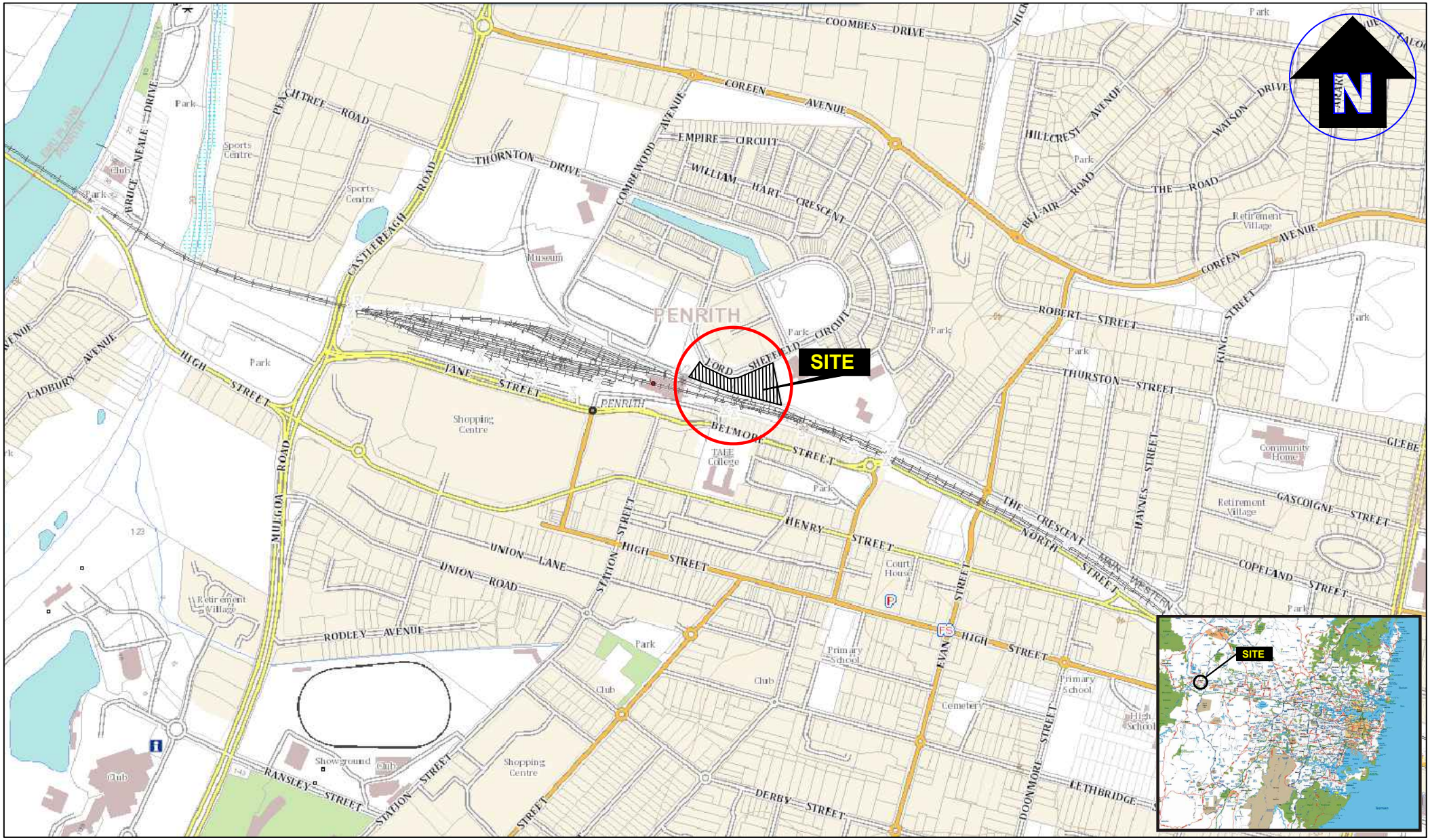
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ABBREVIATIONS

ABC	Ambient Background Concentration
ACL	Added Contaminant Limit
ACM	Asbestos-Containing Materials
ANZG	Australian and New Zealand and Australian State and Territory Governments
AS	Australian Standard
ASS	Acid Sulfate Soils
AST	Above-Ground Storage Tank
B(a)P	Benzo(a)Pyrene (a polycyclic aromatic hydrocarbon compound)
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CBD	Central Business District
CLM	Contaminated Land Management
COC	Chain of Custody
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DA	Development Application
DBYD	Dial Before You Dig
DP	Deposited Plan
DQI	Data Quality Indicators
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
NSW EPA	Environment Protection Authority (of New South Wales)
ESL	Ecological Screening Level
F1	C_6-C_{10} TRH less sum of BTEX concentrations
F2	>C_{10}-C_{16} TRH less naphthalene
F3	>C_{16}-C_{34} TRH
F4	>C_{34}-C_{40} TRH
FCS	Fibre Cement Sheeting
HIL	Health-based Investigation Level
HM	Heavy Metals
HMS	Hazardous Materials Survey
HSL	Health-based Screening Level
km	Kilometres
LBP	Lead-Based Paint
LGA	Local Government Area
LOR	Limit of Reporting (of corresponding laboratory analytical method)
m	Metres
mAHD	metres Australian Height Datum
mBGL	metres Below Ground Level
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Litre
µg/L	Micrograms per Litre
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per- or Poly- Fluoroalkyl Substances
PID	Photo-Ionisation Detector

pH	Potential (a measure of the acidity or basicity of an aqueous solution)
ppm	Parts per Million
PQL	Practical Quantitation Limit (limit of detection for a given laboratory method)
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
SEPP	State Environmental Planning Policy
SIL	Soil Investigation Level
SP	Strata Plan
SRA	Sample Receipt Advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TCLP	Toxicity Characteristics Leaching Procedure
TEQ	Toxicity Equivalent Quotient
TPH	Total Petroleum Hydrocarbons (superseded term equivalent to TRH)
TRH	Total Recoverable Hydrocarbons (non-specific analysis of organic compounds)
UCL	Upper Confidence Limit (of the arithmetic mean)
UPSS	Underground Petroleum Storage System
US EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compounds (specific organic compounds which are volatile)

Appendix A -Figures



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Practical Solutions for Built Environments
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

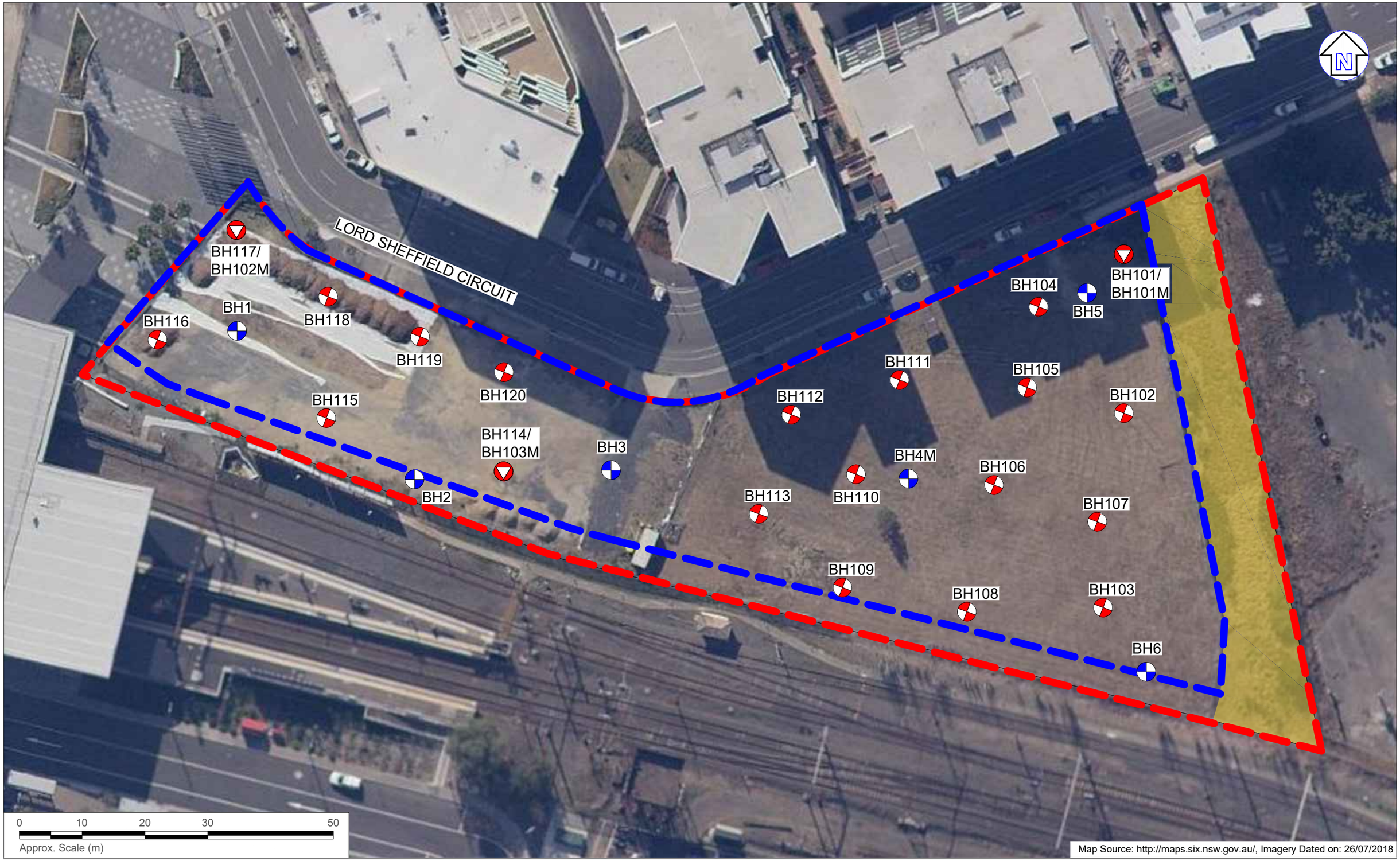
Drawn:	L.H.
Approved:	-
Date:	26-10-22
Scale:	Not To Scale

Urban Apartments Pty Ltd
Preliminary Site Investigation
160-172 Lord Sheffield Circuit, Penrith NSW

Site Locality Plan

Figure:
1

Project: E25358 .E02_Rev0



LEGEND (All Locations are Approximate)

- Site boundary
- Proposed Basement Area
- Previous Borehole locations (EI (2021) Geotechnical Investigation
- Groundwater Monitoring Well locations
- Borehole locations
- Inaccessible area (Community Garden)

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Practical Solutions for Built Environments
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Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	L.H.
Approved:	AI
Date:	26/10/22

Urban Apartments Pty Ltd
Geotechnical Investigation
160 Lord Sheffield Circuit, Penrith NSW
Borehole Location Plan

Figure: 2

Project: E25358.E02

Appendix B -Tables

Table 1 – Summary of Soil Test Results **E25358.E02 - Penrith**

Sample ID	Sampling Date	Metals								PAHs				BTEX				TRHs						Pesticides		Total PCBs	Asbestos
		As	Cd	Cr#	Cu	Pb	Hg	Ni	Zn	Carcinogenic PAHs (as B(a)P TEQ)	Benzo(a)pyrene	Total PAHs	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1	F2	F3	F4	C6-C9	C10-C36	OCPs	OPPs		Presence / absence
In-situ (Fill Soil)																											
BH101_0.4-0.5	6/09/2022	13	<0.3	14	29	29	<0.05	8.7	57	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH102_0.4-0.5		6	<0.3	11	22	22	<0.05	6.6	42	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH103_0.2-0.3		7	<0.3	12	26	15	<0.05	6.6	36	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH104_0.5-0.6		5	<0.3	8.1	20	24	<0.05	6.4	43	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH105_0.4-0.5		8	<0.3	12	30	20	<0.05	10	52	0.3	0.2	1.9	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH106_0.7-0.8		4	<0.3	6.9	39	16	<0.05	14	59	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH108_0.4-0.5		7	<0.3	8.7	44	26	<0.05	7.7	42	**7.4**	4.9	64	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	250	<120	<20	260	<1	<1.7	<1	Absent
BH109_0.2-0.3		10	<0.3	11	21	31	<0.05	5.5	37	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH110_0.2-0.3		5	<0.3	14	18	19	<0.05	10	37	0.4	0.2	2	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH111_0.3-0.4		19	<0.3	11	120	23	<0.05	8.1	51	<0.3	<0.1	1.3	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	130	<120	<20	120	<1	<1.7	<1	Absent
BH112_0.3-0.4		11	<0.3	5.1	36	33	0.07	8.5	57	0.4	0.2	3.6	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	99	<120	<20	<110	<1	<1.7	<1	Absent
BH113_0.4-0.5		6	<0.3	15	30	31	<0.05	10	34	0.7	0.4	4.3	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH114_0.2-0.3		6	<0.3	9.2	21	32	<0.05	5.2	45	0.4	0.2	2.4	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH115_0.2-0.3		9	<0.3	21	21	26	<0.05	6.7	50	0.8	0.5	6.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH116_0.2-0.3		12	<0.3	13	28	29	<0.05	6.3	51	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH117_0.2-0.3		5	<0.3	18	30	22	<0.05	15	83	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH118_0.3-0.4		13	<0.3	13	34	29	<0.05	9.2	59	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH119_0.2-0.3		14	<0.3	15	27	30	<0.05	9.3	46	<0.3	0.1	1.1	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
BH120_0.2-0.3		6	<0.3	12	62	49	0.11	8.4	86	<0.3	0.1	0.9	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
Statistical Analysis																											
Maximum Average		8.7	<0.3	12.1	34.6	26.6	0.05	8.5	50.9	0.7	0.4	5.0	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	101.0	<120	<20	118.4	<1	<1.7	<1	Absent
Maximum Concentration		19.0	<0.3	21.0	120.0	49.0	0.1	15.0	86.0	7.4	4.9	64.0	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	250.0	<120	<20	260.0	<1	<1.7	<1	Absent
Minimum concentration		4.0	<0.3	5.1	18.0	15.0	<0.5	5.2	34.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Absent
95%UCL		**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**2.357**	**1.503**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**
(In-situ Natural Soil)																											
BH101_1.5-1.6	6/09/2022	6	<0.3	9.2	24	10	<0.05	3.3	15	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH102_1.5-1.6		6	<0.3	8.9	23	12	<0.05	2.4	14	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH103_1.7-1.8		6	<0.3	11	27	12	<0.05	5.5	22	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH106_1.2-1.3		5	<0.3	11	20	10	<0.05	3.5	17	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH109_1.5-1.6		5	<0.3	10	22	10	<0.05	3.7	19	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH111_1.5-1.6		6	<0.3	10	20	12	<0.05	2.8	14	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH112_1.5-1.6		5	<0.3	9.8	20	10	<0.05	3.3	15	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH114_1.3-1.4		6	<0.3	11	20	11	<0.05	2.8	16	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH115_1.5-1.6		7	<0.3	12	20	13	<0.05	3.5	17	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH116_1.5-1.6		4	<0.3	12	16	9	<0.05	3.8	16	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH117_1.5-1.6		4	<0.3	14	14	8	<0.05	5	18	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
BH119_1.1-1.2		7	<0.3	13	21	11	<0.05	3	17	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
Statistical Analysis																											
Maximum Average		5.6	<0.3	11.0	20.6	10.7	<0.5	3.6	16.7	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
Maximum Concentration		7.0	<0.3	14.0	27.0	13.0	<0.5	5.5	22.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
Minimum concentration		4.0	<0.3	8.9	14.0	8.0	<0.5	2.4	14.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	Absent
NEPM (2013) Criteria																											
HIL B - *Residential with minimal soil access*		500	150	500 Cr(VI)	30,000	1,200	120	1,200	60,000	4		400												600		1	
HSL D - Commercial / Industrial Soil texture classification – Clay		Source depths (0 m to <1 m. BGL)											NL	4	NL	NL	NL	310	NL								
		Source depths (1 m to <2 m. BGL)											NL	6	NL	NL	NL	480	NL								
		Source depths (2 m to <4 m. BGL)											NL	9	NL	NL	NL	NL	NL								
		Source depths (4 m + BGL)											NL	20	NL	NL	NL	NL	NL								
EILs / ESLs Urban residential and public open space [1] [2]		100		198	150	1,100		170	370		0.7		170	65	105	125	45	180	120	1,300	5,600			180			
EILs / ESLs - Commercial and industrial [1] [2]		160		680	210	1,800		110	570		0.7		370	95	135	185	95	215	170	2,500	6,600			640			
NSW EPA (2014) Waste Classification Criteria																											
General Soild Waste	CT1 (mg/kg)	100	20	100		100	4	40		0.8	200		10	288	600	1,000						650	10000	<50	250	<50	If detected material is Special Waste - Asbestos Waste
	TCLP1 (mg/L) / SCC1 (mg/kg)	5 / 500	1 / 100	5 / 1,900		5 / 1,500	0.2 / 50	2 / 1,050		0.04 / 10	NR / 200		0.5 / 18	14.4 / 518	30 / 1,080	50 / 1,800						NR/650	NR/10000	NR / <50	NR / 250	NR / <50	
Restricted Solid Waste	CT2 (mg/kg)	400	80	400		400	16	160		3.2	800		40	1,152	2,400	4,000						2600	40000	NR	1,000	NR	
	TCLP2 (mg/L) / SCC2 (mg/kg)	20 / 2,000	4 / 400	20 / 7,600		20 / 6,000	0.8 / 200	8 / 4,200		0.16 / 23	NR / 800		2 / 72	57.6 / 2,073	120 / 4,320	200 / 7,200						NR/2600	NR/40000	NR / <50	NR / 1,000	NR / <50	
Special Waste / Scheduled Waste																								> 2 mg/kg - Scheduled Waste [3]		> 2 mg/kg - PCB Waste [4]	
NSW EPA ENM Order [5]	Maximum Average Concentration (mg/kg)	20	0.5	75	100	50	0.5	30	150		0.5	20		NR	NR	NR	NR					NR	250				
	Absolute Maximum	40	1	150	200	100	1	60	300		1	40		0.5	65	25	15					NR	500				

Notes:

	Highlighted values exceed HIL / HSL
	Highlighted values exceed EILs/ESLs
HIL A	NEPC 1999 Amendment 2013 'HIL A' - Health based Residential with garden / accessible soil, also includes children's day care centres, preschools and primary schools.
HIL D	NEPC 1999 Amendment 2013 'HIL D' - Health based commercial / industrial settings
HSL C	NEPC 1999 Amendment 2013 'HSL C' Health Based Screening Levels applicable for vapour intrusion values applicable for recreational/open space settings.
RSW	NSW EPA 2014 Restricted Solid Waste Thresholds, in Waste Classification Guidelines, Table 1 (CT2) and Table 2 (TCLP2 / SCC2)
#	Thresholds are for Chromium VI.
NA	Not analysed
NL	Not Limiting' If the derived soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical
NC	Not calculated
1	As strata is predominantly clay, fine grained soil assessment criteria values were applied.
2	EIL criteria is derived from a site specific Added Contaminant Limit (ACL) with the Ambient Background Concentration (ABC) for a high traffic NSW suburb.
3	NSW EPA Scheduled Chemical Wastes Chemical Control Order 2004. Section 4.14
4	NSW EPA Polychlorinated Biphenyl (PCB) Chemical Control Order 1997. Where PCBs are reported at concentrations >2 mg/kg and <50 mg/kg, material is *non-scheduled PCB waste* . Where PCBs are reported at concentrations >50 mg/kg, material is *scheduled PCB waste* .
5	ENM Exemption and Order (NSW EPA, 2014).
F1	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
F2	To obtain F2 subtract naphthalene from the >C10-C16 fraction.
F3	(>C16-C34)
F4	(>C34-C40)

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Table T2 - Summary of Groundwater Analytical Results

Sample ID	Sampling Date	Metals								PAHs			BTEX					TRHs				Total VOC	Total Phenols
		As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Total PAHs	Benzo(a)pyrene	Naphthalene	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1	F2	F3	F4		
GW-BH101M	21/9/2022	<1	<0.1	<1	2	<1	<0.0001	4	17	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<10	<50
GW-BH102M		<1	<0.1	<1	2	<1	<0.0001	5	<5	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<10	<50
GW-BH103M		<1	<0.1	1	2	<1	<0.0001	4	22	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<10	<50
GW-BH104M		<1	0.2	<1	2	<1	<0.0001	16	19	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<10	<50
Statistical Analysis																							
Maximum Concentration		<1	0.2	1	2	<1	<0.0001	16	22	<1	<0.1	<0.1	<5	<5	<5	<5	<10	<500	<60	<500	<500	<100	<50
GILs																							
HSL A & B - *Low to high density residential* Soil texture classification – Sand	2m to <4m											NL	800	NL	NL	NL	NL	1,000	1,000				
	4m to <8m											NL	800	NL	NL	NL	NL	1,000	1,000				
	8m+											NL	900	NL	NL	NL	NL	1,000	1,000				
GILs	Fresh Waters [1]	24 (AsIII) 13 (AsV)	0.2	1 [3] (Cr VI)	1.4	3.4	0.06 [2]	11	8 [3]			16	950	180 [4]	80 [4]	350	275 [4]	50 [5]	60 [5]	500 [5]	500 [5]		320
	Recreational Water [6]	100	20		1,000 *	100	10	200	3,000*				10	25*	3*	20 *	20 *						
NJDEP - Screening Levels [7]												300											
PFAS - Freshwater [8]																							

Notes:

Highlighted indicates criteria exceeded

Highlighted indicates criteria not met

All values are µg/L unless stated otherwise

HSL A & B	NEPC 1999 Amendment 2013 'HSL A & B' Health Based Screening Levels for vapour intrusion applicable for low-high density residential settings.
NL	Not Limiting
F1	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
F2	To obtain F2 subtract naphthalene from the >C10-C16 fraction.
F3	(>C16-C34)
F4	(>C34-C40)
1	NEPM (2013) Groundwater Investigation Levels for fresh and marine water quality, based on ANZECC & ARMCANZ (2000).
2	Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZG (2018) for further guidance.
3	Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance
4	Low reliability toxicity data, refer to ANZECC & ARMCANZ (2000)
5	In lack of a criteria the laboratory PQL has been used (DEC, 2007).
6	Based on NHMRC (2011 - update August 2018 v.3.5) Drinking Water Guidelines. The lowest of the Health Guideline x10 or the Aesthetic Guideline has been chosen as the assessment criteria. Aesthetic based criteria have been indicated by *
7	Value dervied from the NJDEP vapour intrusion groundwater screening levels (GWSL)
8	Value dervied from the National Environmental Management Plan for PFAS - 95% species protection for slightly to moderately disturbed systems.
9	The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.

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UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	26/10/2022 3:40:23 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Carcinogenic PAHs

General Statistics

Total Number of Observations	19	Number of Distinct Observations	5
		Number of Missing Observations	0
Minimum	0.3	Mean	0.737
Maximum	7.4	Median	0.3
SD	1.62	Std. Error of Mean	0.372
Coefficient of Variation	2.198	Skewness	4.305

Normal GOF Test

Shapiro Wilk Test Statistic	0.294	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.901	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.432	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.203	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.381	95% Adjusted-CLT UCL (Chen-1995)	1.74
		95% Modified-t UCL (Johnson-1978)	1.442

Gamma GOF Test

A-D Test Statistic	4.982	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.42	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.204	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.983	k star (bias corrected MLE)	0.863
Theta hat (MLE)	0.749	Theta star (bias corrected MLE)	0.854
nu hat (MLE)	37.36	nu star (bias corrected)	32.8
MLE Mean (bias corrected)	0.737	MLE Sd (bias corrected)	0.793
		Approximate Chi Square Value (0.05)	20.7
Adjusted Level of Significance	0.0369	Adjusted Chi Square Value	19.87

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.167	95% Adjusted Gamma UCL (use when n<50)	1.216

Lognormal GOF Test

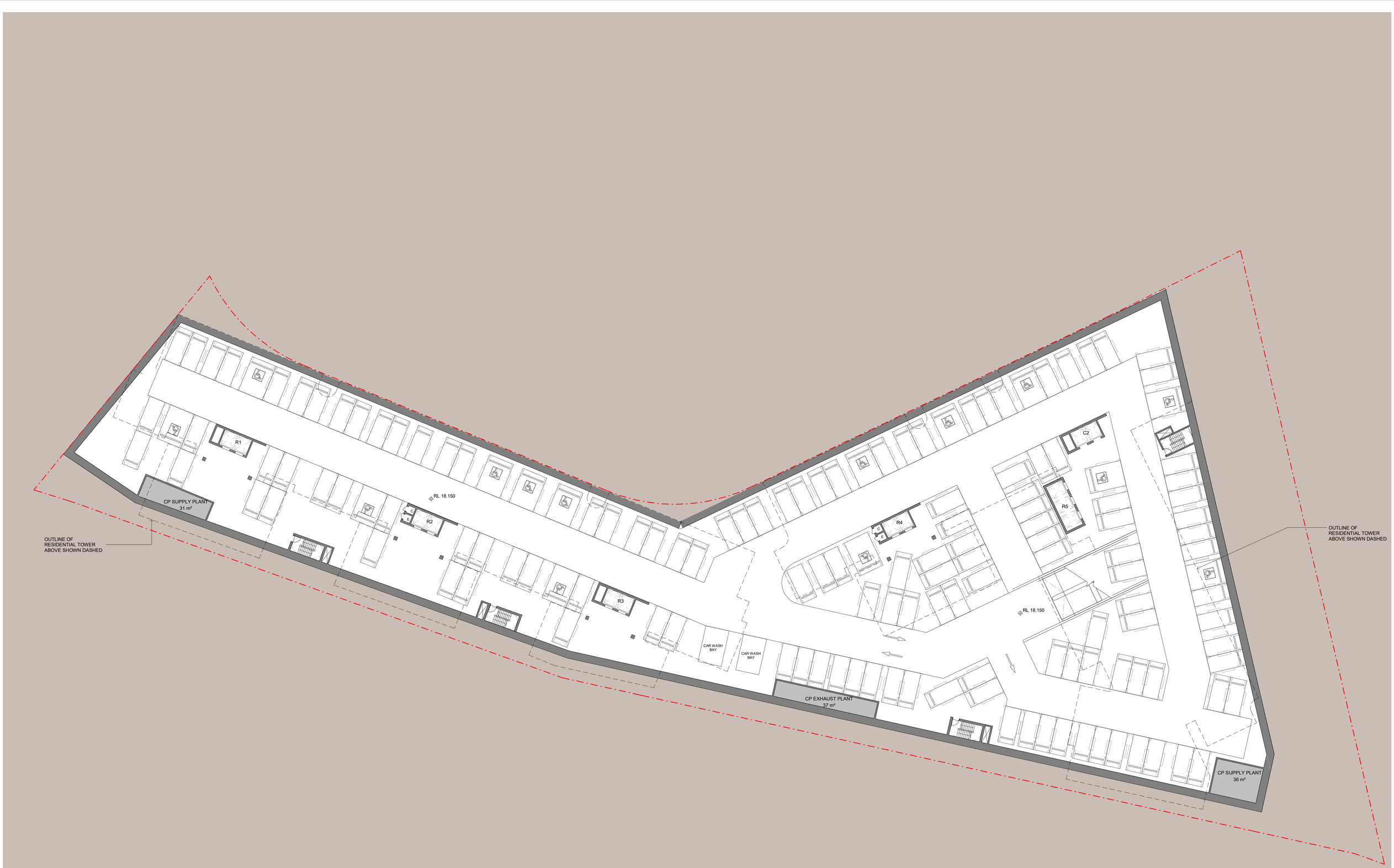
Shapiro Wilk Test Statistic	0.474	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.901	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.354	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.203	Data Not Lognormal at 5% Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data Not Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59					Minimum of Logged Data	-1.204				Mean of logged Data		-0.894
60					Maximum of Logged Data	2.001				SD of logged Data		0.759
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	0.822				90% Chebyshev (MVUE) UCL		0.836
64					95% Chebyshev (MVUE) UCL	0.973				97.5% Chebyshev (MVUE) UCL		1.162
65					99% Chebyshev (MVUE) UCL	1.533						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data do not follow a Discernible Distribution (0.05)											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	1.348				95% Jackknife UCL		1.381
72					95% Standard Bootstrap UCL	1.338				95% Bootstrap-t UCL		7.676
73					95% Hall's Bootstrap UCL	6.464				95% Percentile Bootstrap UCL		1.479
74					95% BCA Bootstrap UCL	1.937						
75					90% Chebyshev(Mean, Sd) UCL	1.852				95% Chebyshev(Mean, Sd) UCL		2.357
76					97.5% Chebyshev(Mean, Sd) UCL	3.057				99% Chebyshev(Mean, Sd) UCL		4.434
77												
78	Suggested UCL to Use											
79					95% Chebyshev (Mean, Sd) UCL	2.357						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

	A	B	C	D	E	F	G	H	I	J	K	L
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6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	B(a)P											
12												
13	General Statistics											
14	Total Number of Observations					19			Number of Distinct Observations			5
15									Number of Missing Observations			0
16	Minimum					0.1			Mean			0.411
17	Maximum					4.9			Median			0.1
18	SD					1.093			Std. Error of Mean			0.251
19	Coefficient of Variation					2.662			Skewness			4.286
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic					0.308			Shapiro Wilk GOF Test			
23	5% Shapiro Wilk Critical Value					0.901			Data Not Normal at 5% Significance Level			
24	Lilliefors Test Statistic					0.418			Lilliefors GOF Test			
25	5% Lilliefors Critical Value					0.203			Data Not Normal at 5% Significance Level			
26	Data Not Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL								95% UCLs (Adjusted for Skewness)			
30	95% Student's-t UCL					0.845			95% Adjusted-CLT UCL (Chen-1995)			1.086
31									95% Modified-t UCL (Johnson-1978)			0.886
32												
33	Gamma GOF Test											
34	A-D Test Statistic					4.154			Anderson-Darling Gamma GOF Test			
35	5% A-D Critical Value					0.786			Data Not Gamma Distributed at 5% Significance Level			
36	K-S Test Statistic					0.382			Kolmogrov-Smirnoff Gamma GOF Test			
37	5% K-S Critical Value					0.207			Data Not Gamma Distributed at 5% Significance Level			
38	Data Not Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)					0.672			k star (bias corrected MLE)			0.601
42	Theta hat (MLE)					0.611			Theta star (bias corrected MLE)			0.683
43	nu hat (MLE)					25.55			nu star (bias corrected)			22.85
44	MLE Mean (bias corrected)					0.411			MLE Sd (bias corrected)			0.529
45									Approximate Chi Square Value (0.05)			12.98
46	Adjusted Level of Significance					0.0369			Adjusted Chi Square Value			12.33
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL (use when n>=50))					0.723			95% Adjusted Gamma UCL (use when n<50)			0.761
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic					0.597			Shapiro Wilk Lognormal GOF Test			
53	5% Shapiro Wilk Critical Value					0.901			Data Not Lognormal at 5% Significance Level			

	A	B	C	D	E	F	G	H	I	J	K	L
54				Lilliefors Test Statistic		0.333	Lilliefors Lognormal GOF Test					
55				5% Lilliefors Critical Value		0.203	Data Not Lognormal at 5% Significance Level					
56	Data Not Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59				Minimum of Logged Data		-2.303			Mean of logged Data			-1.794
60				Maximum of Logged Data		1.589			SD of logged Data			0.962
61												
62	Assuming Lognormal Distribution											
63				95% H-UCL		0.472			90% Chebyshev (MVUE) UCL			0.443
64				95% Chebyshev (MVUE) UCL		0.528			97.5% Chebyshev (MVUE) UCL			0.646
65				99% Chebyshev (MVUE) UCL		0.877						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data do not follow a Discernible Distribution (0.05)											
69												
70	Nonparametric Distribution Free UCLs											
71				95% CLT UCL		0.823			95% Jackknife UCL			0.845
72				95% Standard Bootstrap UCL		0.819			95% Bootstrap-t UCL			4.479
73				95% Hall's Bootstrap UCL		3.053			95% Percentile Bootstrap UCL			0.9
74				95% BCA Bootstrap UCL		1.168						
75				90% Chebyshev(Mean, Sd) UCL		1.163			95% Chebyshev(Mean, Sd) UCL			1.503
76				97.5% Chebyshev(Mean, Sd) UCL		1.976			99% Chebyshev(Mean, Sd) UCL			2.905
77												
78	Suggested UCL to Use											
79				95% Chebyshev (Mean, Sd) UCL		1.503						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

Appendix C -Proposed Development Plans



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2	01.09.2022	FOR CLIENT REVIEW	SC	DC
3	02.09.2022	FOR COORDINATION	SC	WG
4	14.09.2022	FOR DIP	MF	DC

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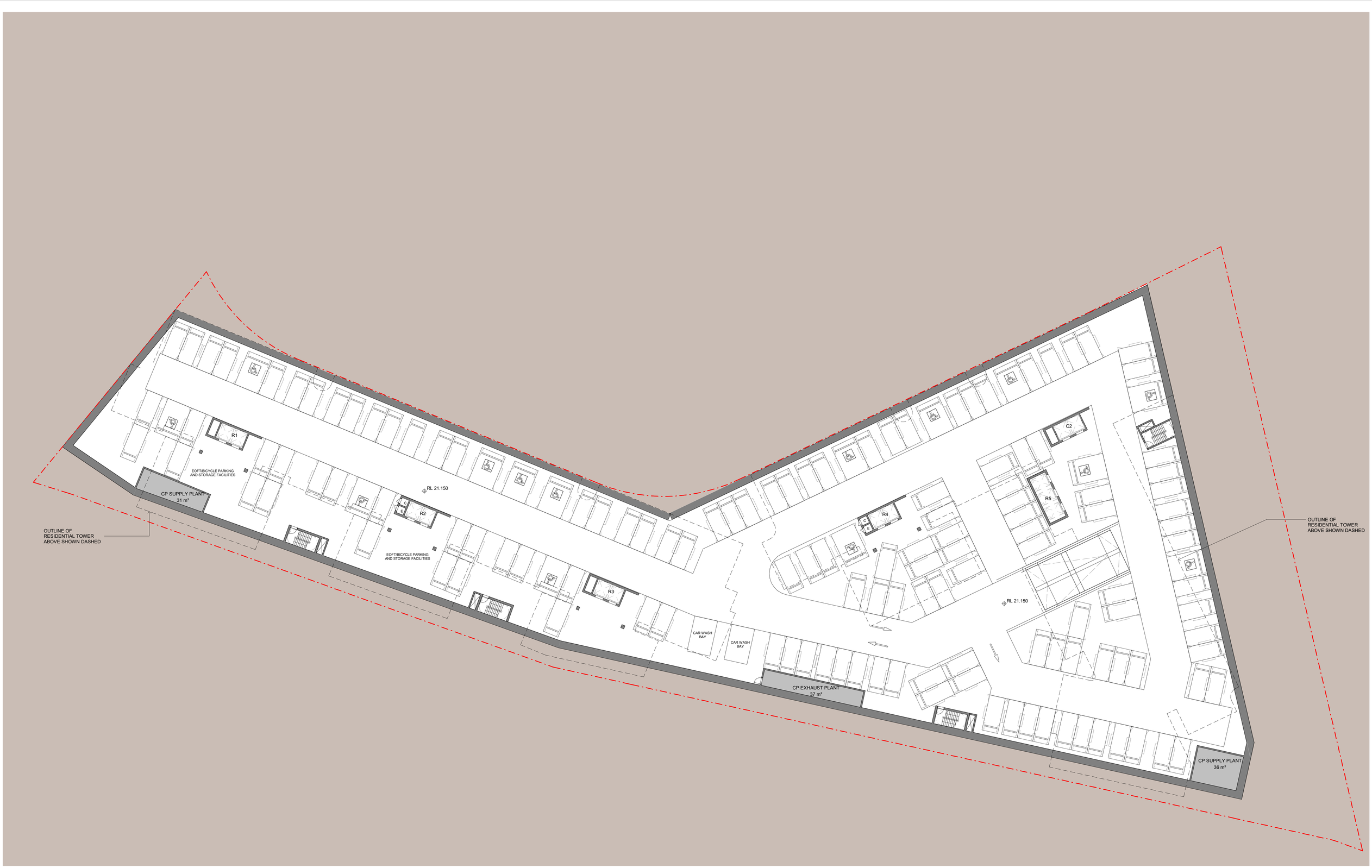
6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
DEVELOPMENT APPLICATION

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Author	WG	6626
Drawing No.		Revision
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2	24.06.2022	FOR CLIENT REVIEW	SC	WG
3	08.07.2022	DRAFT PRE-DA	SC	WG
4	11.07.2022	PRE-DA	DC	WG
5	08.08.2022	FOR COORDINATION	DC	WG
6	01.09.2022	FOR CLIENT REVIEW	SC	DC
7	02.09.2022	FOR COORDINATION	SC	WG
8	14.09.2022	FOR DIP	MF	DC

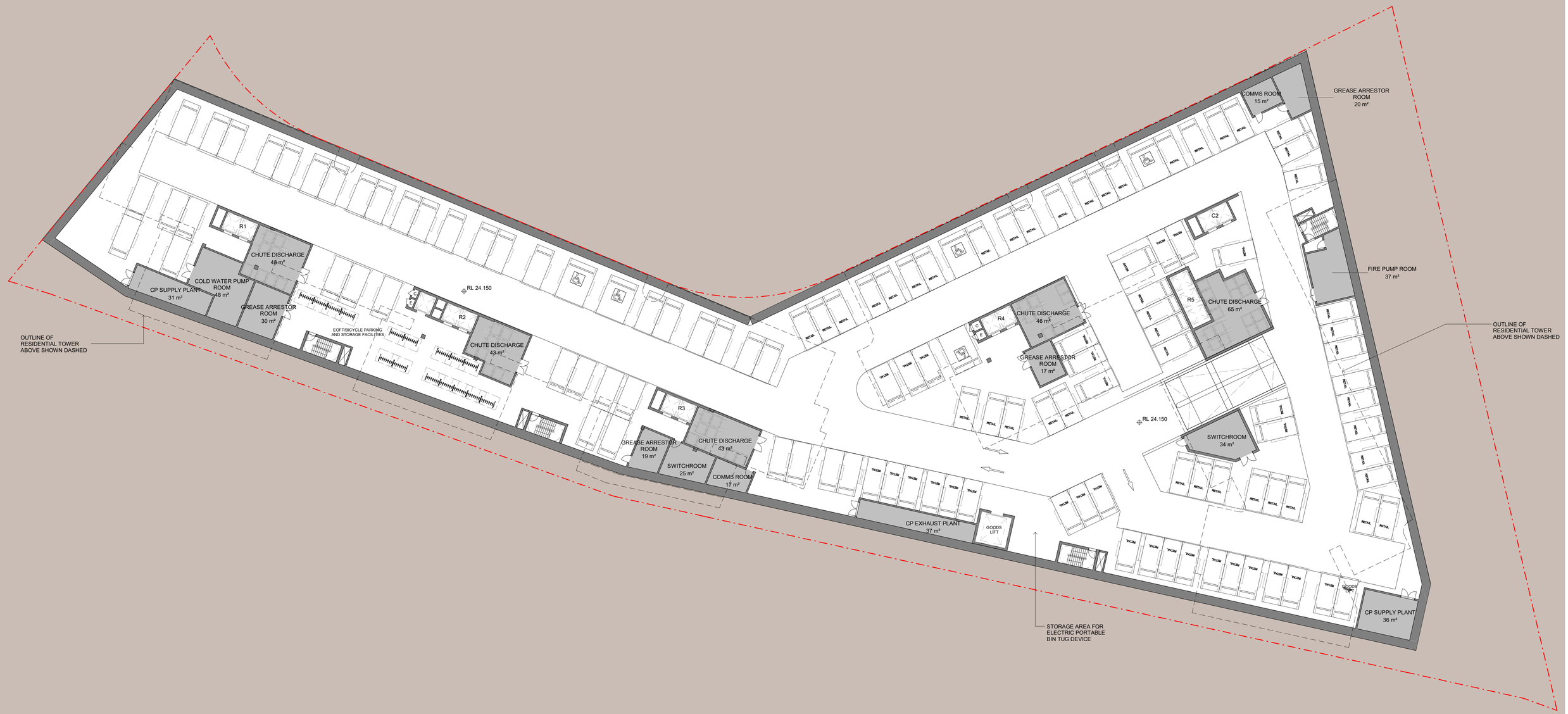
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Author	WG	6626
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2	24.06.2022	FOR CLIENT REVIEW	SC	WG
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5	01.09.2022	FOR CLIENT REVIEW	SC	DC
6	02.09.2022	FOR COORDINATION	SC	WG
7	14.09.2022	FOR DIP	MF	DC

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5	11.07.2022	PRE-DA	DC	WG
6	08.08.2022	FOR COORDINATION	DC	WG
7	25.08.2022	FOR COORDINATION	MF	WG
8	01.09.2022	FOR CLIENT REVIEW	SC	DC
9	02.09.2022	FOR COORDINATION	SC	WG
10	14.09.2022	FOR DIP	MF	DC

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Drawing Name

FLOOR PLAN - GROUND LEVEL

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Author	WG	6626
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11	14.09.2022	FOR DIP	MF	DC

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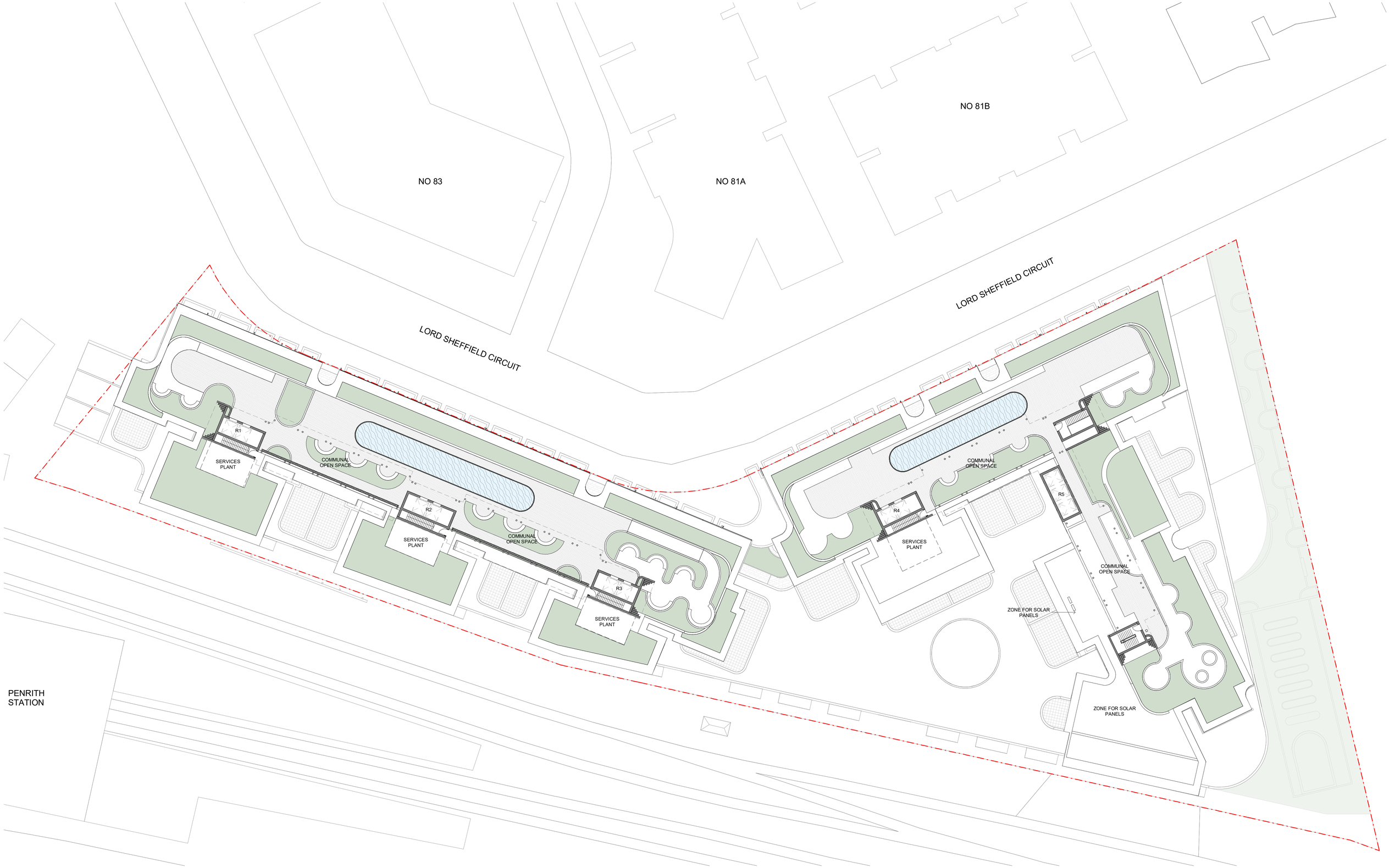
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4	02.09.2022	FOR COORDINATION	SC	WG
5	14.09.2022	FOR DIP	MF	DC

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Drawing Name

FLOOR PLAN - COMMUNAL ROOFTOP

Date	Scale	Sheet Size
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Author	WG	6626
Drawing No.		Revision
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Nominated Architects: Adam Haddow-7188 | John Pradel-7004

0 2.5 5 12.5m

1:250 @A1

Rev	Date	Revision	By	Chk.
1	26.05.2022	FOR CLIENT REVIEW	SC	WG
2	24.06.2022	FOR CLIENT REVIEW	SC	WG
3	08.07.2022	DRAFT PRE-DA	SC	WG
4	11.07.2022	PRE-DA	DC	WG
5	08.08.2022	FOR COORDINATION	DC	WG
6	01.09.2022	FOR CLIENT REVIEW	SC	DC
7	02.09.2022	FOR COORDINATION	SC	WG
8	14.09.2022	FOR DIP	MF	DC

Client

URBAN PROPERTY

Project

6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
DEVELOPMENT APPLICATION

Drawing Name

FLOOR PLAN - ROOF

Date	Scale	Sheet Size
14.09.2022	1 : 250	@ A1
Drawn	Chk.	Job No.
Author	WG	6626
Drawing No.		Revision
A-1014		/ 8

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Nominated Architects: Adam Haddow-7188 | John Pradel-7004

0 1 2 5m
1:100 @A1

Rev	Date	Revision	By	Chk.
1	26.05.2022	FOR CLIENT REVIEW	SC	WG
2	11.07.2022	PRE-DA	DC	WG
3	01.09.2022	FOR CLIENT REVIEW	SC	DC
4	02.09.2022	FOR COORDINATION	SC	WG
5	14.09.2022	FOR DIP	MF	DC

Client
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Project
6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
DEVELOPMENT APPLICATION

Drawing Name
ELEVATION - NORTH

Date	Scale	Sheet Size
14.09.2022	1 : 250	@ A1
Drawn	Chk.	Job No.
Author	Checker	6626
Drawing No.		Revision
A-1401		/ 5

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Nominated Architects: Adam Haddow-7188 | John Pradel-7004

0 2.5 5 12.5m
1:250 @A1

Rev	Date	Revision	By	Chk.
1	26.05.2022	FOR CLIENT REVIEW	SC	WG
2	01.09.2022	FOR CLIENT REVIEW	SC	DC
3	02.09.2022	FOR COORDINATION	SC	WG
4	14.09.2022	FOR DIP	MF	DC

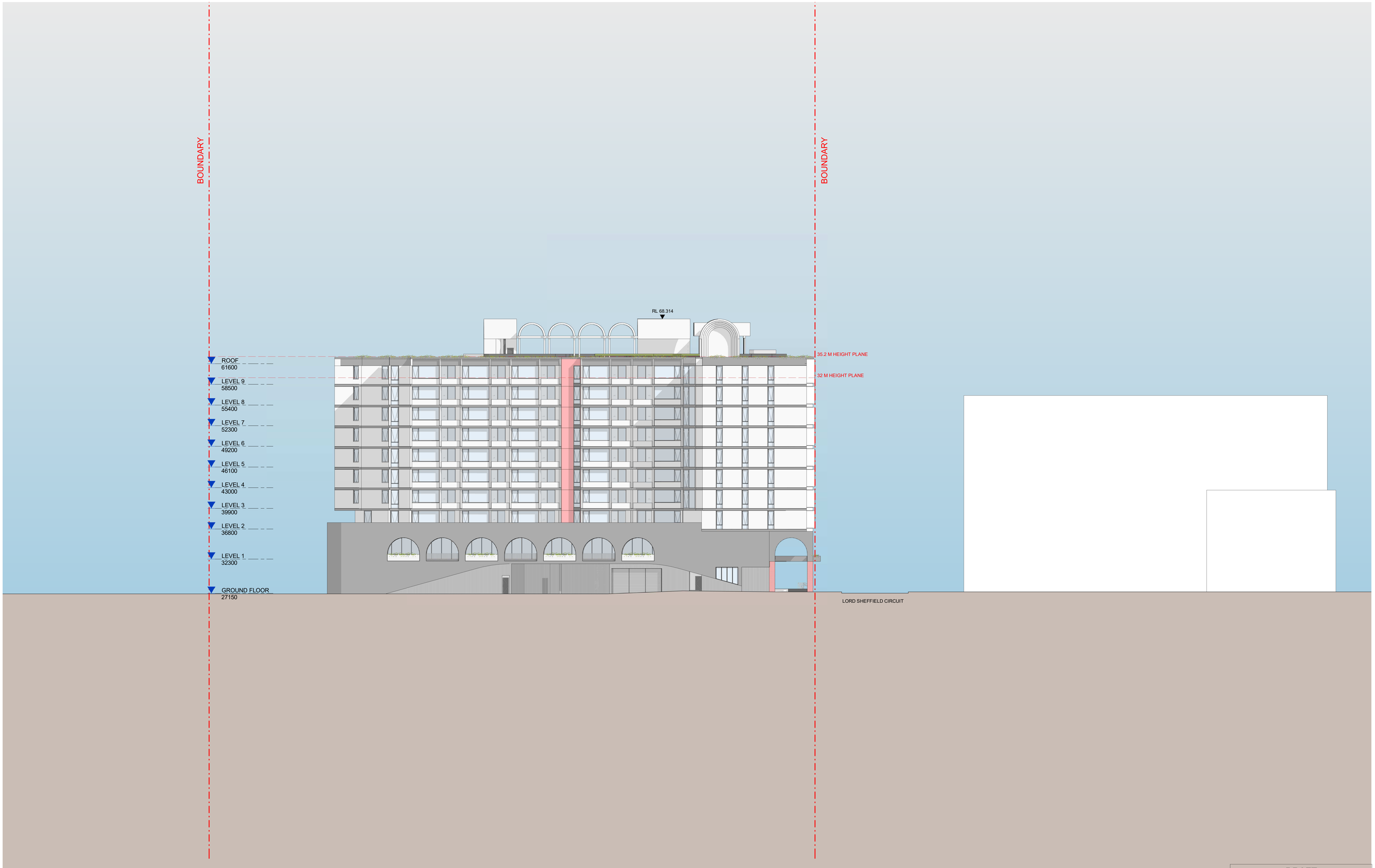
Client
URBAN PROPERTY

Project
6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
DEVELOPMENT APPLICATION

Drawing Name
ELEVATION - SOUTH

Date	Scale	Sheet Size
14.09.2022	1 : 250	@ A1
Drawn	Chk.	Job No.
Author	WG	6626
Drawing No.		Revision
A-1402		/ 4

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Nominated Architects: Adam Haddow-7188 | John Pradel-7004

0 1 2 5m

1:100 @A1

Rev	Date	Revision	By	Chk.
1	26.05.2022	FOR CLIENT REVIEW	SC	WG
2	11.07.2022	PRE-DA	DC	WG
3	01.09.2022	FOR CLIENT REVIEW	SC	DC
4	02.09.2022	FOR COORDINATION	SC	WG
5	14.09.2022	FOR DIP	MF	DC

Client

URBAN PROPERTY

Project

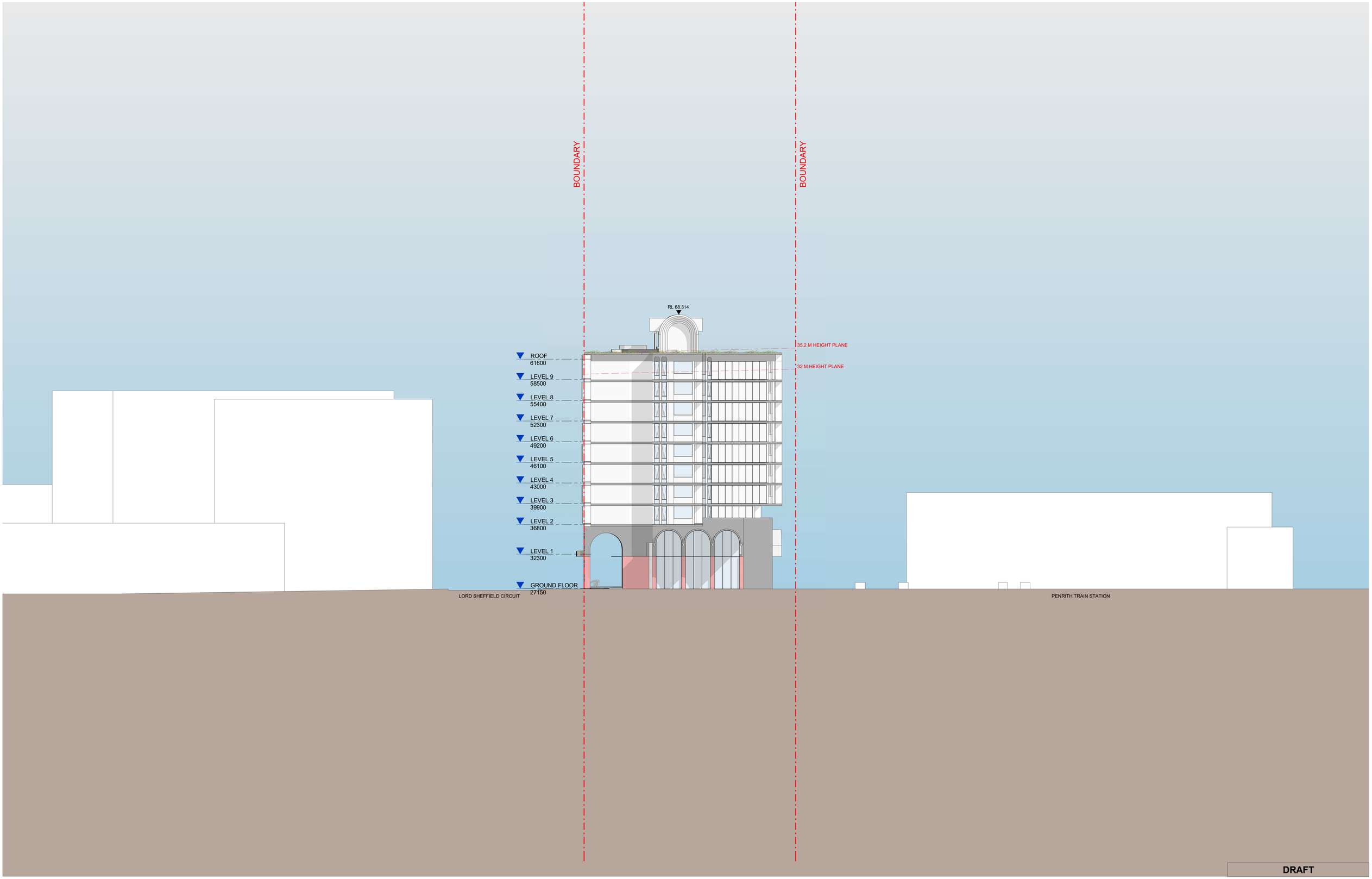
6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
DEVELOPMENT APPLICATION

Drawing Name

ELEVATION - EAST

Date	Scale	Sheet Size
14.09.2022	1 : 250	@ A1
Drawn	Chk.	Job No.
Author	Checker	6626
Drawing No.		Revision
A-1403		/ 5

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Nominated Architects: Adam Haddow-7188 | John Pradel-7004

0 1 2 5m

1:100 @A1

Rev	Date	Revision	By	Chk.
1	26.05.2022	FOR CLIENT REVIEW	SC	WG
2	11.07.2022	PRE-DA	DC	WG
3	01.09.2022	FOR CLIENT REVIEW	SC	DC
4	02.09.2022	FOR COORDINATION	SC	WG
5	14.09.2022	FOR DIP	MF	DC

Client

URBAN PROPERTY

Project

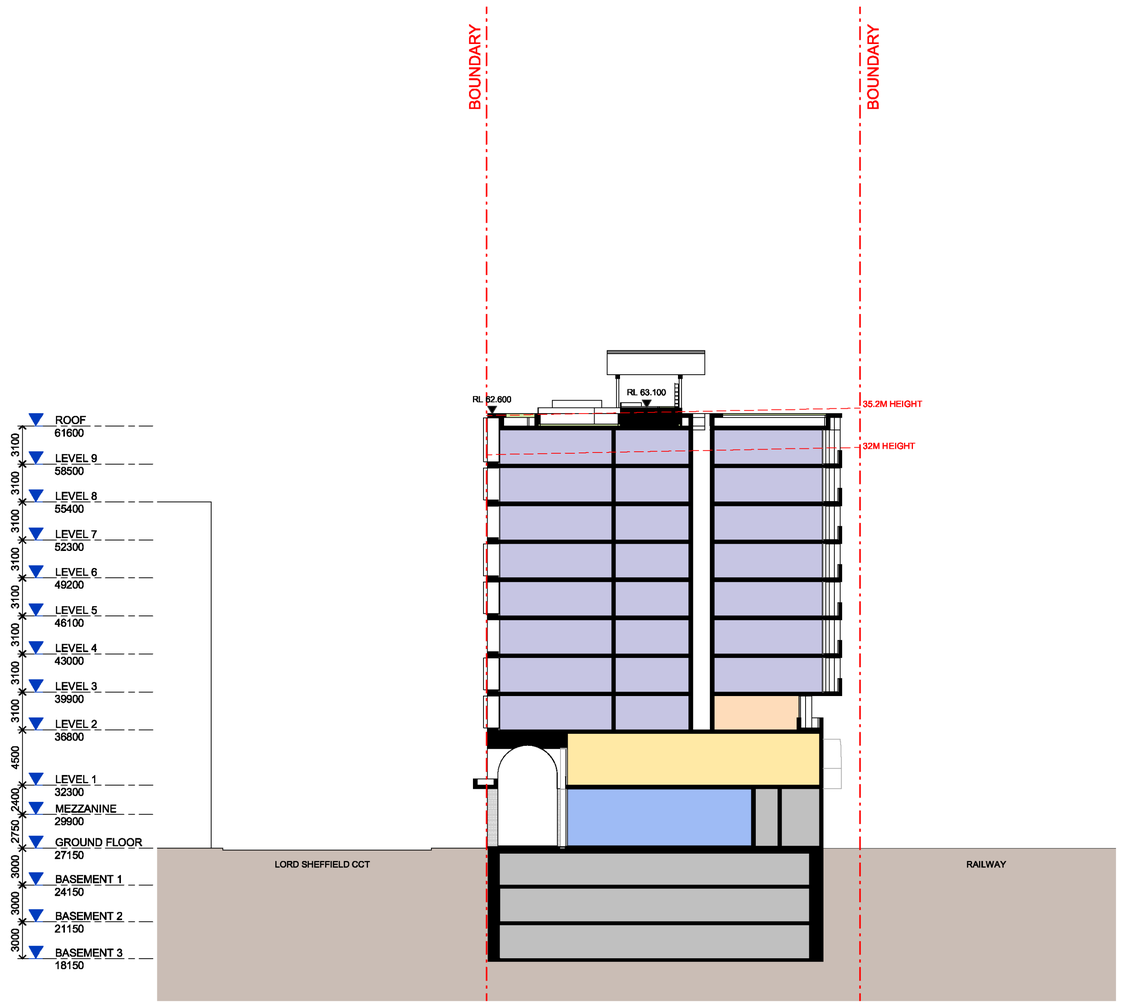
6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
DEVELOPMENT APPLICATION

Drawing Name

ELEVATION - WEST

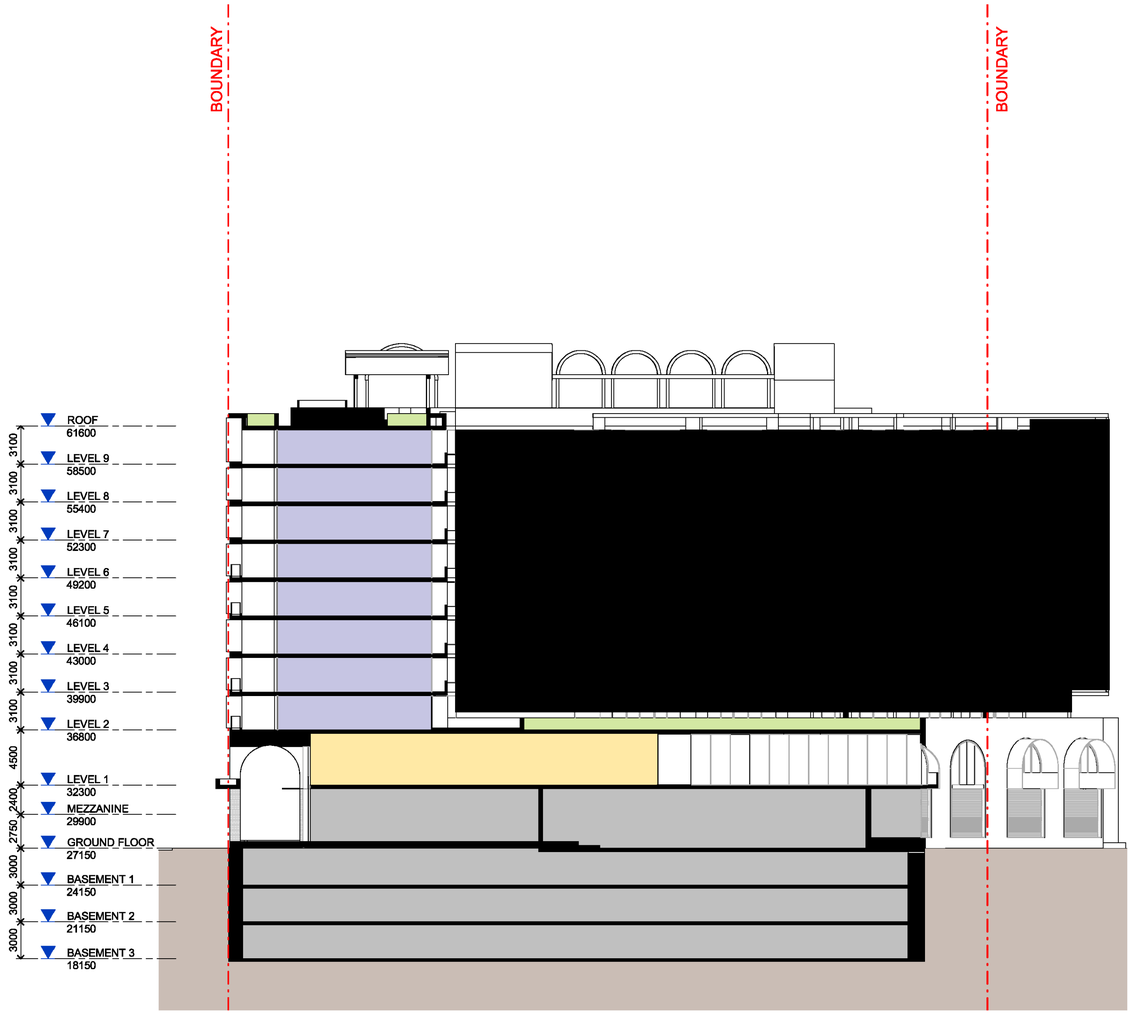
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Author	Checker	6626
Drawing No.		**Revision**
A-1404		/ 5

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1 SECTION
SECTION A

SCALE 1 : 250



2 SECTION
SECTION B

SCALE 1 : 250

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Nominated Architects: Adam Haddow-7188 | John Pradel-7064

0 2.5 5 12.5m
1:250 @A1

Rev	Date	Revision	By	Chk.
1	26.06.2022	FOR CLIENT REVIEW	SC	WG
2	01.09.2022	FOR CLIENT REVIEW	SC	DC
3	02.09.2022	FOR COORDINATION	SC	WG
4	14.09.2022	FOR DIP	MF	DC

Client
URBAN PROPERTY

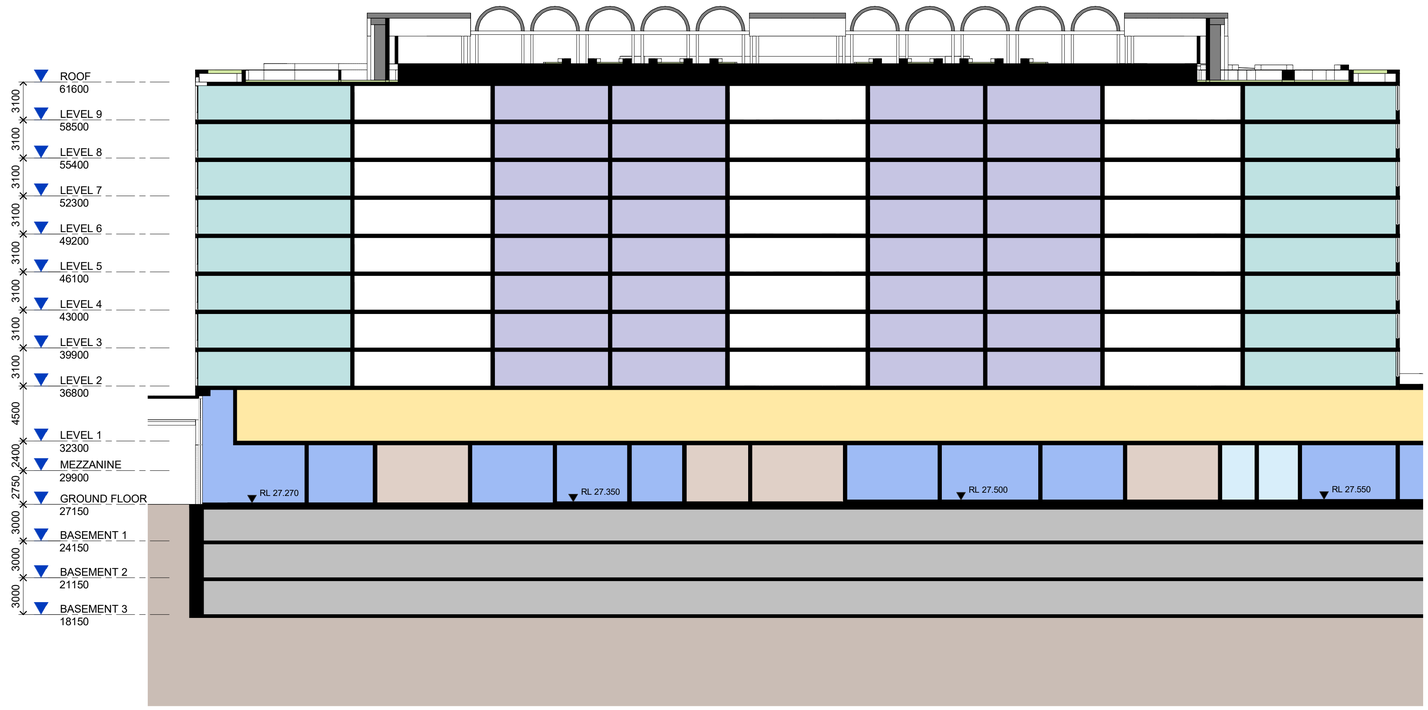
Project
6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
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Drawing Name
SECTIONS - SHEET 1

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DC	WG	6626
Drawing No.		Revision
A-1501		/ 4

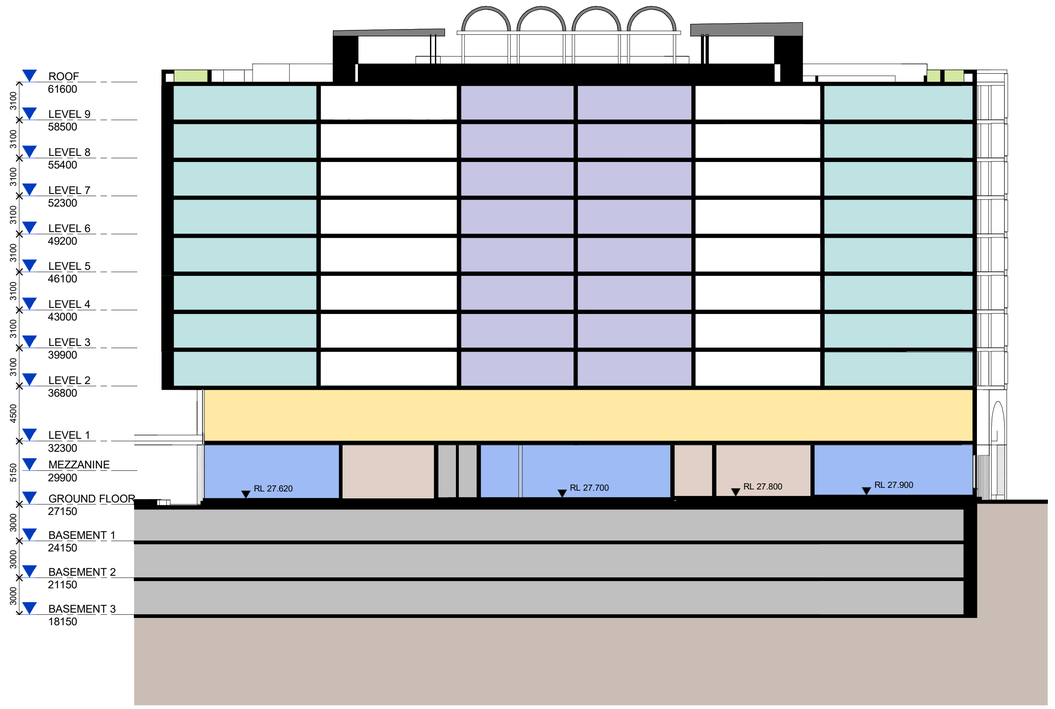
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1 SECTION
SECTION C

SCALE 1 : 250



2 SECTION
SECTION D

SCALE 1 : 250

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Nominated Architects: Adam Haddow-7188 | John Pradel-7004

0 1 2 5m
1:100 @A1

Rev	Date	Revision	By	Chk.
1	01.09.2022	FOR CLIENT REVIEW	SC	DC
2	02.09.2022	FOR COORDINATION	SC	WG
3	14.09.2022	FOR DIP	MF	DC

Client
URBAN PROPERTY

Project
6626
160-172 LORD SHEFFIELD CIRCUIT
PENRITH
DEVELOPMENT APPLICATION

Drawing Name
SECTIONS - SHEET 2

Date	Scale	Sheet Size
14.09.2022	1 : 250	@ A1
Drawn	Chk.	Job No.
DC	WG	6626
Drawing No.		Revision
A-1502		/ 3

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Appendix D -Site Photographs

(taken 6 September 2022)



Photograph 1:



Photograph 2:



Photograph 3:

Appendix E -Borehole Logs

BOREHOLE LOG

BH NO: BH101

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	1 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T		BH101_0.40-0.50		0		0	FILL: Gravelly CLAY: medium plasticity, dark brown	D to D	No detectable odour - to -	FILL
		BH101_0.90-1.00		1		-1	1.00 Clayey CLAY: high plasticity, brown			RESIDUAL SOIL
		BH101_1.50-1.60		2		-2	1.60 :			
	▷			3		-3				
				4		-4				
				5		-5				
				6		-6				Groundwater Seepage at 6.10m
				7		-7				
				8		-8	Terminated at 7.80 m. Target depth reached.			
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH102

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	2 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH102_0.40-0.50		0		0	FILL: Sandy CLAY: medium plasticity, dark brown, sand is fine to medium grained, gravels are medium grained sub-angular to angular	D to M	No detectable odour	FILL
							0.60			
		BH102_0.90-1.00		1		-1	FILL: Gravelly CLAY: medium plasticity, grey			FILL
							1.20			
		BH102_1.50-1.60					CLAY: high plasticity, grey			RESIDUAL SOIL
							Terminated at 1.60 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH103

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	3 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH103_0.20-0.30		0		0	FILL: Sandy CLAY: medium plasticity, dark brown	M to M	No detectable odour	FILL
		BH103_0.70-0.80		1		1	1.30 CLAY: brown			RESIDUAL SOIL
		BH103_1.70-1.80					Terminated at 1.80 m. Target depth reached.			
				2		2				
				3		3				
				4		4				
				5		5				
				6		6				
				7		7				
				8		8				
				9		9				
				10		10				

BOREHOLE LOG

BH NO: BH104

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	4 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH104_0.40-0.50		0		0	FILL: Gravelly CLAY: medium plasticity, dark brown	D to M	No detectable odour	FILL
		BH104_0.90-1.00		1		-1	1.00 CLAY: high plasticity, brown			RESIDUAL SOIL
		BH104_1.50-1.60					Terminated at 1.70 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH105

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	5 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH105_0.40-0.50		0		0	FILL: Gravelly CLAY: medium plasticity, dark brown	D to M	No detectable odour	FILL
		BH105_0.90-1.00		1		-1	1.00 CLAY: high plasticity, brown			RESIDUAL SOIL
		BH105_1.50-1.60					Terminated at 1.70 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH106

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	6 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH106_0.20-0.30		0		0	FILL: Gravelly CLAY: medium plasticity, dark brown	M to M	No detectable odour	FILL
		BH106_0.70-0.80								
		BH106_1.20-1.30		1		-1	1.00 CLAY: high plasticity, brown / red			RESIDUAL SOIL
							Terminated at 1.50 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH107

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	7 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH107_0.30-0.40		0		0	0.00 From 0.0m, medium plasticity, dark brown, sand is fine to medium grained, with medium grained sub-angular to angular gravels	M to M	No detectable odour	
		BH107_0.70-0.80		1		-1	1.10 CLAY: brown	D to M		RESIDUAL SOIL
		BH107_1.50-1.60					Terminated at 1.60 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH108

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	8 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GW/NE	BH108_0.70-0.80		0		0	From 0.0m, medium plasticity, dark brown, sand is fine to medium grained, with medium grained sub-angular to angular gravels	D to M	No detectable odour	
							0.80 FILL: Gravelly CLAY: medium plasticity, dark brown mottled orange, sand is fine to medium grained, with medium grained sub-angular to angular gravels			RESIDUAL SOIL
		BH108_1.40-1.50		1		-1	1.00 CLAY: high plasticity, brown	M to M		
							Terminated at 1.50 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH109

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	9 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH109_0.20-0.30		0		0	FILL: Sandy CLAY: medium plasticity, dark brown, sand is fine to medium grained, with medium grained sub-angular to angular gravels	M to M	No detectable odour	FILL
		BH109_0.70-0.80		1		-1	1.00 CLAY: high plasticity, brown	D to M		RESIDUAL SOIL
		BH109_1.50-1.60					Terminated at 1.60 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH110

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	10 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH110_0.20-0.30		0		0	FILL: Sandy CLAY: medium plasticity, dark brown, sand is fine to medium grained, gravels are medium grained sub-angular to angular	M to M	No detectable odour	FILL
		BH110_0.80-0.90		1		-1	1.00 CLAY: high plasticity, brown	D to M		RESIDUAL SOIL
		BH110_1.40-1.50					Terminated at 1.60 m.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH111

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	11 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH111_0.30-0.40		0		0	FILL: Gravelly SAND: sand is medium to coarse grained, dark grey, gravels are medium grained sub-angular to angular, with minor clay content	M to M	No detectable odour	FILL
							0.40 CLAY: high plasticity, brown			RESIDUAL SOIL
		BH111_1.50-1.60		1		1		D to M		
							Terminated at 1.60 m.			
				2		2				
				3		3				
				4		4				
				5		5				
				6		6				
				7		7				
				8		8				
				9		9				
				10		10				

BOREHOLE LOG

BH NO: BH112

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	12 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH112_0.30-0.40		0		0	FILL: Gravelly SAND: sand is medium to coarse grained, dark grey, gravels are medium grained sub-angular to angular, with minor clay content, with trace slag	M to M	No detectable odour	FILL
							0.70			
				1		-1	CLAY: high plasticity, brown	D to M		RESIDUAL SOIL
		BH112_1.50-1.60					Terminated at 1.60 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH113

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	13 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH113_0.40-0.50		0		0	FILL: Gravelly CLAY: medium plasticity, dark brown mottled orange, gravels are medium grained sub-angular to angular, with fine to medium grained sand	M to M	No detectable odour	FILL
							0.85			
		BH113_1.30-1.40		1		1	CLAY: high plasticity, brown	D to M		RESIDUAL SOIL
							Terminated at 1.60 m. Target depth reached.			
				2		2				
				3		3				
				4		4				
				5		5				
				6		6				
				7		7				
				8		8				
				9		9				
				10		10				

BOREHOLE LOG

BH NO: BH114

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	14 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
		BH114_0.20-0.30		0		0	CONCRETE: 100mm thick (0.10)			CONCRETE
							FILL: Sandy CLAY: medium plasticity, pale grey, sand is fine to medium grained, with medium grained sub-angular to angular gravels (0.40)	M to M		FILL
		BH114_0.60-0.70					FILL: Gravelly SAND: sand is medium to coarse grained, dark brown, gravels are medium grained sub-angular to angular, with minor clay content (0.80)		No detectable odour	
				1		-1	Clayey CLAY: high plasticity,	D to D		RESIDUAL SOIL
		BH114_1.30-1.40					(1.50)			
	▽			2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				Groundwater Seepage at 6.00m
				7		-7				
							Terminated at 7.60 m. Target depth reached.			
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH115

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	15 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH115_0.20-0.30		0		0	FILL: Sandy CLAY: low to medium plasticity, dark grey mottled yellow, medium grained sand, with fine to medium grained sub-angular gravels	D to D	No detectable odour	FILL
		BH115_0.80-0.90					0.70 FILL: Gravelly CLAY: medium plasticity, dark brown, gravels are medium grained sub-angular to angular	D to M		
		BH115_1.50-1.60		1		1	1.10 CLAY: high plasticity, brown	M to M		RESIDUAL SOIL
							Terminated at 1.70 m. Target depth reached.			
				2		2				
				3		3				
				4		4				
				5		5				
				6		6				
				7		7				
				8		8				
				9		9				
				10		10				

BOREHOLE LOG

BH NO: BH116

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	16 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH116_0.20-0.30		0		0	FILL: Sandy CLAY: low to medium plasticity, pale grey, sand is fine to medium grained, with medium grained sub-angular to angular gravels	M to M	No detectable odour	FILL
				1		-1	1.10 CLAY: high plasticity, brown	D to M		RESIDUAL SOIL
		BH116_1.50-1.60					Terminated at 1.60 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH117

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	17 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	▽	BH117_0.20-0.30		0		0	FILL: Sandy CLAY: medium plasticity, dark grey mottled yellow, medium grained sand, with fine to medium grained sub-angular gravels	M to M	No detectable odour	FILL
		BH117_0.90-1.00		1		-1	0.90 Sandy CLAY: medium to high plasticity, brown mottled orange, with coarse grained sub-angular to angular gravels			RESIDUAL SOIL
		BH117_1.50-1.60					1.10 CLAY: high plasticity, brown			
				2		-2	1.60 :			
				3		-3				
				4		-4				
				5		-5				Groundwater Seepage at 5.20m
				6		-6	Terminated at 6.10 m. Collapse.			
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH118

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	18 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH118_0.30-0.40		0		0	FILL: Sandy CLAY: low to medium plasticity, pale grey, fine to medium grained sand, with medium grained sub-angular to angular gravels	M to M	No detectable odour	FILL
							0.60			
		BH118_1.00-1.10		1		-1	CLAY: high plasticity, brown	D to M		RESIDUAL SOIL
							Terminated at 1.50 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH119

Location	162-170 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APATMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	**Date**
Sheets	19 of 20	**Review By**	**Date**
Drilling Contractor		**Surface RL**	**Northings** -
Plant		**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
	GWNE	BH119_0.20-0.30		0		0	FILL: Sandy CLAY: low to medium plasticity, pale grey, fine to medium grained sand, with medium grained sub-angular to angular gravels	M to M	No detectable odour	FILL
		BH119_1.10-1.20		0.60			CLAY: high plasticity, brown			RESIDUAL SOIL
				1		-1				
							Terminated at 1.50 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

BOREHOLE LOG

BH NO: BH120

Location	160-172 Lord Sheffield Circuit, Penrith	**Started**	06 September 2022
Client	URBAN APARTMENTS PTY LTD	**Completed**	06 September 2022
Job No.	E25358	**Logged By**	RW **Date**
Sheets	Page 20 of 20	**Review By**	**Date**
Drilling Contractor	Hartgeo	**Surface RL**	**Northings** -
Plant	Ute-Mounted Rig	**Inclination** 90°	**Eastings** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	Odour	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH120_0.20-0.30		0		0	FILL: Sandy CLAY: low to medium plasticity, pale grey, fine to medium grained sand, with medium grained sub-angular to angular gravels	D to M	No detectable odour	FILL
							0.70 CLAY: high plasticity, brown			RESIDUAL SOIL
		BH120_1.20-1.30		1		-1				
							Terminated at 1.50 m. Target depth reached.			
				2		-2				
				3		-3				
				4		-4				
				5		-5				
				6		-6				
				7		-7				
				8		-8				
				9		-9				
				10		-10				

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

Appendix F -Groundwater Monitoring Event Field Notes 21 September 2022

Daily Inspection / Work Summary Card - Remediation & Validation Form

OP 005a (Rev 2)

EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009

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E service@eiaustralia.com.au
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T 02 9516 0722

Project Number:	E25358	Engineer Name:	RW/AS	Page:	1 of 1
Date:	21/09/22	Time ON Site:	9:00 am		
Travel Time:	2h.	Time OFF Site:	2:30pm		

Site Address/Location: 160 Lord sheffield circuit. Penrith.

Climatic Conditions: cloudy.

Completed Works:

4 Groundwater well sampling
- BH101m
- BH107m
- BH103m
- BH4M

Gw-QR1 + Gw-QRB1 taken

Gw-QD1 + Gw-QT1 were taken from BH4M

Comments / Issues / Conclusions / Further Testing Required / Actions to be Undertaken / Timing of Actions:

Before we get started wait for 30 mins to get ~~code~~ password ~~to~~ for site door from client.

Signed b [redacted]

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	160-172 Lord Sheffield Circuit, Penrith	Job Number:	E25358
Client:	Urban Apartments Pty Ltd	Date:	21/9/22
Field Staff:	RW	Sampling Location ID	BH4M
Well Location:		Round No:	N.A

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	10/11/2021	Stick up / down (m):	+0.46 (+ above ground - below ground)
Initial Well Depth (mBTOC):	N.A.	Screen Interval (mBTOC):	4.90 - 10.90 m
Previous Sampling Date:	N.A.	Previous SWL (mBTOC):	N.A.

PID READINGS

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

PRE PURGE

Total Well Depth (mBTOC):	11.26	Well Head Condition:	Good
SWL (mBTOC):	6.72	Water Column (m):	4.54

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):	10.76	Fill Timer:	10 | 25
Pump Pressure Regulator (psi):	20	Discharge Timer:	5 | 5
Weather Conditions:	cloudy	Cycle:	cpm4 | cpm2
Pump on time:	10:20	Pump off time:	10:50

WATER QUALITY PARAMETERS

Probe Make and Model: WQM-006 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.)
cpm4 10:22	0.5	6.74	21.47	8972	242.8	0.00	4.65	Light grey, low to medium, no, no sheen
cpm2 10:25	1.0	6.73	21.55	8969	276.6	0.00	3.57	
10:27	1.5	6.73	21.47	8968	219.9	0.00	3.76	
10:28	2.0	6.73	21.48	8970	133.3	0.00	5.89	
10:31	2.5	6.73	21.37	8973	112.0	0.00	6.30	
10:34	3.0	6.73	21.41	8967	144.4	0.00	5.68	
10:36	3.5	6.73	21.48	8961	114.6	0.00	5.60	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

GW-QD/QT, taken, change to cpm2

SIGNATURE: [redacted]

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	160-172 Lord Sheffield Circuit, Penrith	Job Number:	E25358
Client:	Urban Apartments Pty Ltd	Date:	21/09/2022
Field Staff:	RW	Sampling Location ID	BH 103 M
Well Location:		Round No:	1
MEDIUM	☒Groundwater ☐Surface Water	☐Stormwater	☐Other:
SAMPLING POINT INFO			
Well Installation Date:	6/9/22	Stick up / down (m):	+1.00 (+ above ground - below ground)
Initial Well Depth (mBTOC):	NA	Screen Interval (mBTOC):	5.6 - 8.6m
Previous Sampling Date:	NA	Previous SWL (mBTOC):	NA
PID READINGS			
PID Headspace (ppm):		PID Background (ppm):	
PID Breathing Space (ppm):			
PRE PURGE			
Total Well Depth (mBTOC):	8.42	Well Head Condition:	Good
SWL (mBTOC):	7.10	Water Column (m):	~~8.42~~ 1.32
PHASE SEPARATED HYDROCARBONS (PSH)			
Depth to PSH (mBTOC):		PSH Visually Confirmed (Bailer):	
PSH Thickness (mm):			
Field Filtered			
Yes (0.45 µm)	☒	No ☐	(Request lab 0.45 µm filter the sample)
PURGE AND SAMPLE			
Sampling Method	☒Bladder ☐Peristaltic	☐Submersible	☐Other:
Depth of Pump Inlet (mBTOC):	7.92	Fill Timer:	25
Pump Pressure Regulator (psi):	20	Discharge Timer:	5
Weather Conditions:	Overcast	Cycle:	CPM2
Pump on time:	12:24	Pump off time:	13:00
WATER QUALITY PARAMETERS			
Probe Make and Model:	WQM006	Bump Test Date and Time:	

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
12:50	0.5	7.13	22.34	7156	112.5	0.33	6.56	Brown, medium, no, no sheen
12:55	1.0	7.13	22.35	7254	113.5	0.20	6.39	
12:55	1.5	7.13	22.29	7246	112.5	0.00	6.30	
12:57	2.0	7.13	22.22	7206	111.5	0.03	6.22	
12:59	2.5	7.13	22.28	7121	110.3	0.00	6.18	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

GW - BH 103 M

SIGNATURE: [redacted]

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	160-172 Lord Sheffield Circuit, Penrith	Job Number:	E25358
Client:	Urban Apartments Pty Ltd	Date:	21/9/22
Field Staff:	RW	Sampling Location ID	BH102M
Well Location:		Round No:	1
MEDIUM	☒Groundwater ☐Surface Water	☐Stormwater	☐Other:
SAMPLING POINT INFO			
Well Installation Date:	6/9/22	Stick up / down (m):	+ 1.02 (+ above ground - below ground)
Initial Well Depth (mBTOC):	NA	Screen Interval (mBTOC):	4.12 – 7.12m
Previous Sampling Date:	NA	Previous SWL (mBTOC):	NA
PID READINGS			
PID Headspace (ppm):		PID Background (ppm):	
PID Breathing Space (ppm):			
PRE PURGE			
Total Well Depth (mBTOC):	7.20	Well Head Condition:	Good
SWL (mBTOC):	6.60	Water Column (m):	0.60
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:	Bailer
Depth of Pump Inlet (mBTOC):		Fill Timer:	
Pump Pressure Regulator (psi):		Discharge Timer:	
Weather Conditions:		Cycle:	
Pump on time:		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.)
1:36	0.5		22.72	4152	118.4	1.03	7.52	Brown, high NO, no sheen
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

Not enough to sample with low flow pump. Bailer used. only one water reading was taken

SIGNATURE [redacted]

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	160-172 Lord Sheffield Circuit, Penrith	Job Number:	E25358
Client:	Urban Apartments Pty Ltd	Date:	21/9/22
Field Staff:	RW	Sampling Location ID	BH101M
Well Location:		Round No:	1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	6/9/22	Stick up / down (m):	+1.91 (+ above ground - below ground)
Initial Well Depth (mBTOC):	NA	Screen Interval (mBTOC):	5.8 - 8.8m
Previous Sampling Date:	NA	Previous SWL (mBTOC):	NA

PID READINGS

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

PRE PURGE

Total Well Depth (mBTOC):	8.47	Well Head Condition:	Good
SWL (mBTOC):	7.23	Water Column (m):	1.24

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC):		PSH Visually Confirmed (Bailer):	
PSH Thickness (mm):			

Field Filtered

Yes (0.45 µm) ☒ No ☐ (Request lab 0.45 µm filter the sample)

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC):	7.97	Fill Timer:	25
Pump Pressure Regulator (psi):	20	Discharge Timer:	5
Weather Conditions:	Cloudy	Cycle:	9 mz
Pump on time:	11:24	Pump off time:	11:40

WATER QUALITY PARAMETERS

Probe Make and Model: WQM-006 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.)
11:30	0.5	7.27	21.54	8559	135.8	0.00	6.84	brownish yellow, high, no, no
11:32	1.0	7.30	21.55	8647	132.7	0.00	6.57	
11:35	1.5	7.26	21.55	8655	126.4	0.00	6.36	
11:38	2.0	7.26	21.54	8611	123.2	0.00	6.30	
11:41	2.5	7.27	21.45	8614	120.9	0.00	6.27	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

GW - BH101M

SIGNATURE: [redacted]

Appendix G -Chain of Custody Forms and Sample Receipt Advices

Sheet 1 of 5

Site: 160 Lord Sheffield Circuit, Penrith NSW

Project No: E25358

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/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	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
BH101_0.4-0.5	1	J, ZLB	6/09/2022	AM/PM					X																			
BH101_0.9-1.0		J, ZLB	6/09/2022	AM/PM																								
BH101_1.5-1.6	2	J, ZLB	6/09/2022	AM/PM						X																		
BH102_0.4-0.5	3	J, ZLB	6/09/2022	AM/PM					X																			
BH102_0.9-1.0		J, ZLB	6/09/2022	AM/PM																								
BH102_1.5-1.6	4	J, ZLB	6/09/2022	AM/PM						X																		
BH103_0.2-0.3	5	J, ZLB	6/09/2022	AM/PM					X																			
BH103_0.7-0.8		J, ZLB	6/09/2022	AM/PM																								
BH103_1.7-1.8	6	J, ZLB	6/09/2022	AM/PM						X																		
BH104_0.5-0.6	7	J, ZLB	6/09/2022	AM/PM					X																			
BH104_0.9-1.0		J, ZLB	6/09/2022	AM/PM																								
BH104_1.5-1.6		J, ZLB	6/09/2022	AM/PM																								

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

SGS EHS Sydney COC
SE236405

LABORATORY TURNAROUND
- [X] 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 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 [redacted]
Signature [redacted]
Date 7/09/2022

Received by (SGS):
[redacted]
Date 7.9.22 7:40 am

Sampler's Comments:
Please send QT1 samples to Envirolab

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

Sheet 2 of 5

Site: 160 Lord Sheffield Circuit, Penrith NSW

Project No: E25358

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/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	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
BH105_0.4-0.5	8	J, ZLB	6/09/2022	AM/PM					X																		
BH105_0.9-1.0		J, ZLB	6/09/2022	AM/PM																							
BH105_1.5-1.6		J, ZLB	6/09/2022	AM/PM																							
BH106_0.2-0.3		J, ZLB	6/09/2022	AM/PM																							
BH106_0.7-0.8	9	J, ZLB	6/09/2022	AM/PM					X																		
BH106_1.2-1.3	10	J, ZLB	6/09/2022	AM/PM						X																	
BH107_0.3-0.4		J, ZLB	6/09/2022	AM/PM																							
BH107_0.7-0.8		J, ZLB	6/09/2022	AM/PM																							
BH107_1.5-1.6		J, ZLB	6/09/2022	AM/PM																							
BH108_0.7-0.8	11	J, ZLB	6/09/2022	AM/PM					X																		
BH108_1.4-1.5		J, ZLB	6/09/2022	AM/PM																							
BH109_0.2-0.3	12	J, ZLB	6/09/2022	AM/PM					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

- [X] 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 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 [redacted]
Signature
Date 7/09/2022

Received by (SGS):
[redacted]
Date 7.9.22 7:40 AM

Sampler's Comments:
Please send QT1 samples to Envirolab

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

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

Sheet 3 of 5

Site: 160 Lord Sheffield Circuit, Penrith NSW

Project No: E25358

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/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	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
BH109_0.7-0.8		J, ZLB	6/09/2022	AM/PM																							
BH109_1.5-1.6	13	J, ZLB	6/09/2022	AM/PM						X																	
BH110_0.2-0.3	14	J, ZLB	6/09/2022	AM/PM					X																		
BH110_0.8-0.9		J, ZLB	6/09/2022	AM/PM																							
BH110_1.4-1.5		J, ZLB	6/09/2022	AM/PM																							
BH111_0.3-0.4	15	J, ZLB	6/09/2022	AM/PM					X																		
BH111_1.5-1.6	16	J, ZLB	6/09/2022	AM/PM						X																	
BH112_0.3-0.4	17	J, ZLB	6/09/2022	AM/PM					X																		
BH112_1.5-1.6	18	J, ZLB	6/09/2022	AM/PM						X																	
BH113_0.4-0.5	19	J, ZLB	6/09/2022	AM/PM					X																		
BH113_1.3-1.4		J, ZLB	6/09/2022	AM/PM																							
BH114_0.2-0.3	20	J, ZLB	6/09/2022	AM/PM					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

- [X] 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 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 [redacted]	[redacted]
Signature	
Date 7/09/2022	Date 7-9-22 7:40 AM

Sampler's Comments:
Please send QT1 samples to Envirolab

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

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

Sheet 4 of 5

Site: 160 Lord Sheffield Circuit, Penrith NSW

Project No: E25358

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/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	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
BH114_0.6-0.7		J, ZLB	6/09/2022	AM/PM																								
BH114_1.3-1.4	21	J, ZLB	6/09/2022	AM/PM						X																		
BH115_0.2-0.3	22	J, ZLB	6/09/2022	AM/PM					X																			
BH115_0.8-0.9		J, ZLB	6/09/2022	AM/PM																								
BH115_1.5-1.6	23	J, ZLB	6/09/2022	AM/PM						X																		
BH116_0.2-0.3	24	J, ZLB	6/09/2022	AM/PM					X																			
BH116_1.5-1.6	25	J, ZLB	6/09/2022	AM/PM						X																		
BH117_0.2-0.3	26	J, ZLB	6/09/2022	AM/PM					X																			
BH117_0.9-1.0		J, ZLB	6/09/2022	AM/PM																								
BH117_1.5-1.6	27	J, ZLB	6/09/2022	AM/PM						X																		
BH118_0.3-0.4	28	J, ZLB	6/09/2022	AM/PM					X																			
BH118_1.0-1.1		J, ZLB	6/09/2022	AM/PM																								

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

- [X] 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 BB = Bulk Bag

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

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 [redacted]	Print [redacted]
Signature	
Date 7/09/2022	Date 7.9.22 7:40AM

Sampler's Comments:
Please send QT1 samples to Envirolab

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

Sheet 5 of 5

Site: 160 Lord Sheffield Circuit, Penrith NSW

Project No: E25358

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/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	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
BH119_0.2-0.3	29	J, ZLB	6/09/2022	AM/PM					X																		
BH119_1.1-1.2	30	J, ZLB	6/09/2022	AM/PM						X																	
BH120_0.2-0.3	31	J, ZLB	6/09/2022	AM/PM					X																		
BH120_1.2-1.3		J, ZLB	6/09/2022	AM/PM																							
QD1	32	J	6/09/2022	AM/PM							X																
QR1	33	P, S, VC	6/09/2022	AM/PM							X																
QRB1		P, S, VC	6/09/2022	AM/PM																							
QTB1	34	VC	Lab prepared									X															
QTS1	35	VC	Lab prepared									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

- [X] 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 BB = Bulk Bag

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

COC June 2021 FORM v.5 - SGS

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

Sampler's Name (EI): Print [redacted]
Signature
Date 7/09/2022

Received by (SGS): Print [redacted]
Date 7.9.22 7:40AM

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

Report with EI Waste Classification Table ☐

Sampler's Comments:
Please send QT1 samples to Envirolab

SAMPLE RECEIPT ADVICE

SE236405

CLIENT DETAILS

Contact	Richard Wang
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	richard.wang@eiaustralia.com.au
Project	**E25358 160 Lord Sheffield Circuit, Penri**
Order Number	**E25358**
Samples	35

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 7/9/2022
Report Due	Wed 14/9/2022
SGS Reference	**SE236405**

SUBMISSION DETAILS

This is to confirm that 35 samples were received on Wednesday 7/9/2022. Results are expected to be ready by COB Wednesday 14/9/2022. Please quote SGS reference SE236405 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	34 Soil, 1 Water
Date documentation received	7/9/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13.5C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

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

21 soil and 1 water samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

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

SAMPLE RECEIPT ADVICE

SE236405

CLIENT DETAILS

Client EI AUSTRALIA

Project E25358 160 Lord Sheffield Circuit, Penri

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH101_0.4-0.5	30	14	26	11	7	10	11	7
002	BH101_1.5-1.6	-	-	26	-	7	10	11	7
003	BH102_0.4-0.5	30	14	26	11	7	10	11	7
004	BH102_1.5-1.6	-	-	26	-	7	10	11	7
005	BH103_0.2-0.3	30	14	26	11	7	10	11	7
006	BH103_1.7-1.8	-	-	26	-	7	10	11	7
007	BH104_0.5-0.6	30	14	26	11	7	10	11	7
008	BH105_0.4-0.5	30	14	26	11	7	10	11	7
009	BH106_0.7-0.8	30	14	26	11	7	10	11	7
010	BH106_1.2-1.3	-	-	26	-	7	10	11	7
011	BH108_0.4-0.5	30	14	26	11	7	10	11	7
012	BH109_0.2-0.3	30	14	26	11	7	10	11	7
013	BH109_1.5-1.6	-	-	26	-	7	10	11	7
014	BH110_0.2-0.3	30	14	26	11	7	10	11	7
015	BH111_0.3-0.4	30	14	26	11	7	10	11	7
016	BH111_1.5-1.6	-	-	26	-	7	10	11	7
017	BH112_0.3-0.4	30	14	26	11	7	10	11	7
018	BH112_1.5-1.6	-	-	26	-	7	10	11	7
019	BH113_0.4-0.5	30	14	26	11	7	10	11	7
020	BH114_0.2-0.3	30	14	26	11	7	10	11	7
021	BH114_1.3-1.4	-	-	26	-	7	10	11	7
022	BH115_0.2-0.3	30	14	26	11	7	10	11	7
023	BH115_1.5-1.6	-	-	26	-	7	10	11	7
024	BH116_0.2-0.3	30	14	26	11	7	10	11	7

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE236405

CLIENT DETAILS

Client EI AUSTRALIA

Project E25358 160 Lord Sheffield Circuit, Penri

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
025	BH116_1.5-1.6	-	-	26	-	7	10	11	7
026	BH117_0.2-0.3	30	14	26	11	7	10	11	7
027	BH117_1.5-1.6	-	-	26	-	7	10	11	7
028	BH118_0.3-0.4	30	14	26	11	7	10	11	7
029	BH119_0.2-0.3	30	14	26	11	7	10	11	7
030	BH119_1.1-1.2	-	-	26	-	7	10	11	7
031	BH120_0.2-0.3	30	14	26	11	7	10	11	7
032	QD1	-	-	-	-	7	10	11	7
034	QTB1	-	-	-	-	-	-	11	-
035	QTS1	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE236405

CLIENT DETAILS

Client EI AUSTRALIA

Project E25358 160 Lord Sheffield Circuit, Penri

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH101_0.4-0.5	2	1	1
002	BH101_1.5-1.6	-	1	1
003	BH102_0.4-0.5	2	1	1
004	BH102_1.5-1.6	-	1	1
005	BH103_0.2-0.3	2	1	1
006	BH103_1.7-1.8	-	1	1
007	BH104_0.5-0.6	2	1	1
008	BH105_0.4-0.5	2	1	1
009	BH106_0.7-0.8	2	1	1
010	BH106_1.2-1.3	-	1	1
011	BH108_0.4-0.5	2	1	1
012	BH109_0.2-0.3	2	1	1
013	BH109_1.5-1.6	-	1	1
014	BH110_0.2-0.3	2	1	1
015	BH111_0.3-0.4	2	1	1
016	BH111_1.5-1.6	-	1	1
017	BH112_0.3-0.4	2	1	1
018	BH112_1.5-1.6	-	1	1
019	BH113_0.4-0.5	2	1	1
020	BH114_0.2-0.3	2	1	1
021	BH114_1.3-1.4	-	1	1
022	BH115_0.2-0.3	2	1	1
023	BH115_1.5-1.6	-	1	1
024	BH116_0.2-0.3	2	1	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

SE236405

CLIENT DETAILS

Client EI AUSTRALIA

Project E25358 160 Lord Sheffield Circuit, Penri

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
025	BH116_1.5-1.6	-	1	1
026	BH117_0.2-0.3	2	1	1
027	BH117_1.5-1.6	-	1	1
028	BH118_0.3-0.4	2	1	1
029	BH119_0.2-0.3	2	1	1
030	BH119_1.1-1.2	-	1	1
031	BH120_0.2-0.3	2	1	1
032	QD1	-	1	1
034	QTB1	-	-	1

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE236405

CLIENT DETAILS

Client EI AUSTRALIA

Project E25358 160 Lord Sheffield Circuit, Penri

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
033	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:	Project No:
160 Lord Sheffield Circuit, Penrith NSW	E25358

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

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: SOIL	WATER	0.45 µm field filtered	OTHER	Analysis: HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/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			TCLP HM B / PAH
QT1		J	6/09/2022	AM/PM	X						X																

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

Job No: 305223

Date Received: 8/9/22
Time Received: 1320
Received By: KW
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

- [X] 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.

Report with EI Waste Classification Table [ ]

Sampler's Name (EI):	Received by (Envirolab):
Print [redacted]	Pr [redacted]
Signature [redacted]	Si [redacted]
7/09/2022	Date 8/9/22 1320

Sampler's Comments:

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

Sheet 1 of 2

Site: 160 Lord sheffield circuit Penrith

Project No: ES358

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/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs & phenols	Asbestos	Asbestos Quantification	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
GW-BH10/M	1	S,P,VC	21/9/22	AM/PM						X			X														
GW-BH102M	2	S,P,VC								X			X														
GW-BH103M	3	S,P,VC								X			X														
GW-BH4M	4	S,P,VC								X			X														
GW-QD1	5	S,P,VC									X																
GW-QR1	6	S,P,VC									X																
GW-QRB1		S,P,VC	↓	↓																							
TS	7	VC	lab prepped									X															
TB	8	VC	↓									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

SGS EHS Sydney COC
SE237004

LABORATORY TURNAROUND
- [x] 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 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): [redacted]

Received by (SGS): [redacted]

Sampler's Comments:
please send QTI to Envirolab
please "cc" Andrew Ibrahim
& Andrew Schmidt

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

source:SE_Admin.pdf page:1 SGS Ref:SE237004_COC

SAMPLE RECEIPT ADVICE

SE237004

CLIENT DETAILS

Contact	Richard Wang
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	richard.wang@eiaustralia.com.au
Project	**E25358 160 Lord Sheffield Circuit Penrit**
Order Number	**E25358**
Samples	8

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 21/9/2022
Report Due	Thu 29/9/2022
SGS Reference	**SE237004**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Wednesday 21/9/2022. Results are expected to be ready by COB Thursday 29/9/2022.
Please quote SGS reference SE237004 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	8 Water
Date documentation received	23/9/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	16.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

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 sample has been placed on hold as no tests have been assigned for it. This sample will not be processed.

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

SAMPLE RECEIPT ADVICE

SE237004

CLIENT DETAILS

Client EI AUSTRALIA

Project E25358 160 Lord Sheffield Circuit Penrit

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Total Phenolics in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	GW-BH101M	1	22	1	7	9	78	7
002	GW-BH102M	1	22	1	7	9	78	7
003	GW-BH103M	1	22	1	7	9	78	7
004	GW-BH104M	1	22	1	7	9	78	7
005	GW-QD1	1	-	-	7	9	11	7
006	GW-QR1	1	-	-	7	9	11	7
007	TS	-	-	-	-	-	11	-
008	TB	-	-	-	-	-	11	-

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

Sheet 2 of 2

Site: 160 Lord sheffield circuit Penrith

Project No: EV5358

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/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	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
GW-QT1	1	S.P.VC	21/9/22	AM/PM							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

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

Job No: 306495
Date Received: 23.9.22
Time Received: 1315
Received By: AB
Temp: Cool/Ambient
Cooling: Ice/Ice pack
Security: Intact/Broken/None

LABORATORY TURNAROUND
- [x] 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 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): [redacted]
Print
Signa
Date

Received by (~~SGS~~): ELS SYD.
Print
Signa
Date

Sampler's Comments:
please 'cc' results to
Andrew Ibrahim
& Andrew Schmidt

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

Appendix H -Laboratory Analytical Reports

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Richard Wang
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	richard.wang@eiaustralia.com.au
Project	**E25358 160 Lord Sheffield Circuit, Penri**
Order Number	**E25358**
Samples	35

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE236405 R0**
Date Received	7/9/2022
Date Reported	15/9/2022

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 Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

[redacted]

Bennet LO
Senior Chemist

[redacted]

Dong LIANG
Metals/Inorganics Team Leader

[redacted]

Ly Kim HA
Organic Section Head

[redacted]

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

[redacted]

Shane MCDERMOTT
Inorganic/Metals Chemist

[redacted]

Teresa NGUYEN
Organic Chemist

VOC's in Soil [AN433] Tested: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH101_1.5-1.6 SOIL - 6/9/2022 SE236405.002	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH102_1.5-1.6 SOIL - 6/9/2022 SE236405.004	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005
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

PARAMETER	UOM	LOR	BH103_1.7-1.8 SOIL - 6/9/2022 SE236405.006	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH106_1.2-1.3 SOIL - 6/9/2022 SE236405.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH109_1.5-1.6 SOIL - 6/9/2022 SE236405.013	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH111_1.5-1.6 SOIL - 6/9/2022 SE236405.016	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH112_1.5-1.6 SOIL - 6/9/2022 SE236405.018	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

VOC's in Soil [AN433] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH114_1.3-1.4 SOIL - 6/9/2022 SE236405.021	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH115_1.5-1.6 SOIL - 6/9/2022 SE236405.023	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024	BH116_1.5-1.6 SOIL - 6/9/2022 SE236405.025
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH117_1.5-1.6 SOIL - 6/9/2022 SE236405.027	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH119_1.1-1.2 SOIL - 6/9/2022 SE236405.030
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

PARAMETER	UOM	LOR	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031	QD1 SOIL - 6/9/2022 SE236405.032	QTB1 SOIL - 6/9/2022 SE236405.034	QTS1 SOIL - 6/9/2022 SE236405.035
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	[108%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	[108%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	[106%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	[106%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	106%]
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	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH101_1.5-1.6 SOIL - 6/9/2022 SE236405.002	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH102_1.5-1.6 SOIL - 6/9/2022 SE236405.004	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005
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	BH103_1.7-1.8 SOIL - 6/9/2022 SE236405.006	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH106_1.2-1.3 SOIL - 6/9/2022 SE236405.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH109_1.5-1.6 SOIL - 6/9/2022 SE236405.013	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH111_1.5-1.6 SOIL - 6/9/2022 SE236405.016	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH112_1.5-1.6 SOIL - 6/9/2022 SE236405.018	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH114_1.3-1.4 SOIL - 6/9/2022 SE236405.021	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH115_1.5-1.6 SOIL - 6/9/2022 SE236405.023	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024	BH116_1.5-1.6 SOIL - 6/9/2022 SE236405.025
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH117_1.5-1.6 SOIL - 6/9/2022 SE236405.027	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH119_1.1-1.2 SOIL - 6/9/2022 SE236405.030
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

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031	QD1 SOIL - 6/9/2022 SE236405.032
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: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH101_1.5-1.6 SOIL - 6/9/2022 SE236405.002	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH102_1.5-1.6 SOIL - 6/9/2022 SE236405.004	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005
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	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH103_1.7-1.8 SOIL - 6/9/2022 SE236405.006	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH106_1.2-1.3 SOIL - 6/9/2022 SE236405.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH109_1.5-1.6 SOIL - 6/9/2022 SE236405.013	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**190**	<45	<45	<45	**120**
TRH C29-C36	mg/kg	45	**74**	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**250**	<90	<90	<90	**130**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	**260**	<110	<110	<110	**120**
TRH >C10-C40 Total (F bands)	mg/kg	210	**250**	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH111_1.5-1.6 SOIL - 6/9/2022 SE236405.016	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH112_1.5-1.6 SOIL - 6/9/2022 SE236405.018	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**84**	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	**99**	<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	BH114_1.3-1.4 SOIL - 6/9/2022 SE236405.021	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH115_1.5-1.6 SOIL - 6/9/2022 SE236405.023	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024	BH116_1.5-1.6 SOIL - 6/9/2022 SE236405.025
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH117_1.5-1.6 SOIL - 6/9/2022 SE236405.027	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH119_1.1-1.2 SOIL - 6/9/2022 SE236405.030
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	**50**	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031	QD1 SOIL - 6/9/2022 SE236405.032
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	**130**
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	**95**
TRH >C34-C40 (F4)	mg/kg	120	<120	**130**
TRH C10-C36 Total	mg/kg	110	<110	**130**
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	**220**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH101_1.5-1.6 SOIL - 6/9/2022 SE236405.002	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH102_1.5-1.6 SOIL - 6/9/2022 SE236405.004	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH103_1.7-1.8 SOIL - 6/9/2022 SE236405.006	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH106_1.2-1.3 SOIL - 6/9/2022 SE236405.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.5**	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.1**	**0.4**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.1**	**0.2**	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.2**	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**0.3**	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.3**	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**1.9**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.9**	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH109_1.5-1.6 SOIL - 6/9/2022 SE236405.013	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthylene	mg/kg	0.1	0.4	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	0.4	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	7.8	<0.1	<0.1	0.1	0.5
Anthracene	mg/kg	0.1	1.6	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	13	<0.1	<0.1	0.4	0.3
Pyrene	mg/kg	0.1	10	<0.1	<0.1	0.3	0.2
Benzo(a)anthracene	mg/kg	0.1	5.9	<0.1	<0.1	0.2	0.1
Chrysene	mg/kg	0.1	5.0	<0.1	<0.1	0.2	0.2
Benzo(b&j)fluoranthene	mg/kg	0.1	5.7	<0.1	<0.1	0.2	0.2
Benzo(k)fluoranthene	mg/kg	0.1	2.4	<0.1	<0.1	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	4.9	<0.1	<0.1	0.2	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	3.1	<0.1	<0.1	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	0.7	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	2.6	<0.1	<0.1	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	7.4	<0.2	<0.2	0.3	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	7.4	<0.3	<0.3	0.4	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	7.4	<0.2	<0.2	0.3	<0.2
Total PAH (18)	mg/kg	0.8	64	<0.8	<0.8	2.0	1.4
Total PAH (NEPM/WHO 16)	mg/kg	0.8	64	<0.8	<0.8	2.0	1.3

PARAMETER	UOM	LOR	BH111_1.5-1.6 SOIL - 6/9/2022 SE236405.016	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH112_1.5-1.6 SOIL - 6/9/2022 SE236405.018	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.6	<0.1	0.3	0.3
Anthracene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	0.7	<0.1	0.8	0.5
Pyrene	mg/kg	0.1	<0.1	0.6	<0.1	0.7	0.4
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.3	<0.1	0.4	0.2
Chrysene	mg/kg	0.1	<0.1	0.3	<0.1	0.4	0.2
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.3	<0.1	0.5	0.3
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	<0.1	0.2	0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	0.2	<0.1	0.4	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.1	<0.1	0.3	0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.1	<0.1	0.3	0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0.3	<0.2	0.6	0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.4	<0.3	0.7	0.4
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.4	<0.2	0.6	0.3
Total PAH (18)	mg/kg	0.8	<0.8	3.6	<0.8	4.3	2.4
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	3.6	<0.8	4.3	2.4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH114_1.3-1.4 SOIL - 6/9/2022 SE236405.021	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH115_1.5-1.6 SOIL - 6/9/2022 SE236405.023	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024	BH116_1.5-1.6 SOIL - 6/9/2022 SE236405.025
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<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	**0.9**	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**1.4**	<0.1	**0.2**	<0.1
Pyrene	mg/kg	0.1	<0.1	**1.2**	<0.1	**0.1**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.6**	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.6**	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.6**	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.5**	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	**0.7**	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.8**	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.7**	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	**6.8**	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**6.8**	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH117_1.5-1.6 SOIL - 6/9/2022 SE236405.027	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH119_1.1-1.2 SOIL - 6/9/2022 SE236405.030
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.1**	<0.1	**0.2**	**0.2**	<0.1
Pyrene	mg/kg	0.1	**0.1**	<0.1	**0.1**	**0.2**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.1**	**0.2**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	**0.2**	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	**1.1**	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	**1.1**	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031
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	**0.2**
Pyrene	mg/kg	0.1	**0.2**
Benzo(a)anthracene	mg/kg	0.1	**0.1**
Chrysene	mg/kg	0.1	**0.1**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	**0.1**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.2**
Total PAH (18)	mg/kg	0.8	**0.9**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**0.9**

OC Pesticides in Soil [AN420] Tested: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	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
Beta 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 epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
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
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	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
Endrin Aldehyde	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
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	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 CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1

OP Pesticides in Soil [AN420] Tested: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

OP Pesticides in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031
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

PCBs in Soil [AN420] Tested: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PCBs in Soil [AN420] Tested: 12/9/2022 (continued)

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 13/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH101_1.5-1.6 SOIL - 6/9/2022 SE236405.002	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH102_1.5-1.6 SOIL - 6/9/2022 SE236405.004	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005
Arsenic, As	mg/kg	1	13	6	6	6	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	14	9.2	11	8.9	12
Copper, Cu	mg/kg	0.5	29	24	22	23	26
Lead, Pb	mg/kg	1	29	10	22	12	15
Nickel, Ni	mg/kg	0.5	8.7	3.3	6.6	2.4	6.6
Zinc, Zn	mg/kg	2	57	15	42	14	36

PARAMETER	UOM	LOR	BH103_1.7-1.8 SOIL - 6/9/2022 SE236405.006	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH106_1.2-1.3 SOIL - 6/9/2022 SE236405.010
Arsenic, As	mg/kg	1	6	5	8	4	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	11	8.1	12	6.9	11
Copper, Cu	mg/kg	0.5	27	20	30	39	20
Lead, Pb	mg/kg	1	12	24	20	16	10
Nickel, Ni	mg/kg	0.5	5.5	6.4	10	14	3.5
Zinc, Zn	mg/kg	2	22	43	52	59	17

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH109_1.5-1.6 SOIL - 6/9/2022 SE236405.013	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Arsenic, As	mg/kg	1	7	10	5	5	19
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	8.7	11	10	14	11
Copper, Cu	mg/kg	0.5	44	21	22	18	120
Lead, Pb	mg/kg	1	26	31	10	19	23
Nickel, Ni	mg/kg	0.5	7.7	5.5	3.7	10	8.1
Zinc, Zn	mg/kg	2	42	37	19	37	51

PARAMETER	UOM	LOR	BH111_1.5-1.6 SOIL - 6/9/2022 SE236405.016	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH112_1.5-1.6 SOIL - 6/9/2022 SE236405.018	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020
Arsenic, As	mg/kg	1	6	11	5	6	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	10	5.1	9.8	15	9.2
Copper, Cu	mg/kg	0.5	20	36	20	30	21
Lead, Pb	mg/kg	1	12	33	10	31	32
Nickel, Ni	mg/kg	0.5	2.8	8.5	3.3	10	5.2
Zinc, Zn	mg/kg	2	14	57	15	34	45

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 13/9/2022

(continued)

PARAMETER	UOM	LOR	BH114_1.3-1.4 SOIL - 6/9/2022 SE236405.021	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH115_1.5-1.6 SOIL - 6/9/2022 SE236405.023	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024	BH116_1.5-1.6 SOIL - 6/9/2022 SE236405.025
Arsenic, As	mg/kg	1	6	9	7	12	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	11	21	12	13	12
Copper, Cu	mg/kg	0.5	20	21	20	28	16
Lead, Pb	mg/kg	1	11	26	13	29	9
Nickel, Ni	mg/kg	0.5	2.8	6.7	3.5	6.3	3.8
Zinc, Zn	mg/kg	2	16	50	17	51	16

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH117_1.5-1.6 SOIL - 6/9/2022 SE236405.027	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH119_1.1-1.2 SOIL - 6/9/2022 SE236405.030
Arsenic, As	mg/kg	1	5	4	13	14	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	18	14	13	15	13
Copper, Cu	mg/kg	0.5	30	14	34	27	21
Lead, Pb	mg/kg	1	22	8	29	30	11
Nickel, Ni	mg/kg	0.5	15	5.0	9.2	9.3	3.0
Zinc, Zn	mg/kg	2	83	18	59	46	17

PARAMETER	UOM	LOR	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031	QD1 SOIL - 6/9/2022 SE236405.032
Arsenic, As	mg/kg	1	6	10
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	12	12
Copper, Cu	mg/kg	0.5	62	32
Lead, Pb	mg/kg	1	49	23
Nickel, Ni	mg/kg	0.5	8.4	8.4
Zinc, Zn	mg/kg	2	86	56

Mercury in Soil [AN312] Tested: 13/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH101_1.5-1.6 SOIL - 6/9/2022 SE236405.002	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH102_1.5-1.6 SOIL - 6/9/2022 SE236405.004	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH103_1.7-1.8 SOIL - 6/9/2022 SE236405.006	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH106_1.2-1.3 SOIL - 6/9/2022 SE236405.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH109_1.5-1.6 SOIL - 6/9/2022 SE236405.013	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH111_1.5-1.6 SOIL - 6/9/2022 SE236405.016	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH112_1.5-1.6 SOIL - 6/9/2022 SE236405.018	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020
Mercury	mg/kg	0.05	<0.05	**0.07**	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH114_1.3-1.4 SOIL - 6/9/2022 SE236405.021	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH115_1.5-1.6 SOIL - 6/9/2022 SE236405.023	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024	BH116_1.5-1.6 SOIL - 6/9/2022 SE236405.025
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH117_1.5-1.6 SOIL - 6/9/2022 SE236405.027	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH119_1.1-1.2 SOIL - 6/9/2022 SE236405.030
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031	QD1 SOIL - 6/9/2022 SE236405.032
Mercury	mg/kg	0.05	**0.11**	<0.05

Moisture Content [AN002] Tested: 12/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH101_1.5-1.6 SOIL - 6/9/2022 SE236405.002	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH102_1.5-1.6 SOIL - 6/9/2022 SE236405.004	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005
% Moisture	%w/w	1	16.6	20.0	18.6	18.0	20.2

PARAMETER	UOM	LOR	BH103_1.7-1.8 SOIL - 6/9/2022 SE236405.006	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH106_1.2-1.3 SOIL - 6/9/2022 SE236405.010
% Moisture	%w/w	1	19.8	20.5	18.2	13.4	21.6

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH109_1.5-1.6 SOIL - 6/9/2022 SE236405.013	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
% Moisture	%w/w	1	21.1	12.4	20.3	22.1	20.1

PARAMETER	UOM	LOR	BH111_1.5-1.6 SOIL - 6/9/2022 SE236405.016	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH112_1.5-1.6 SOIL - 6/9/2022 SE236405.018	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020
% Moisture	%w/w	1	19.1	20.0	20.9	20.0	13.8

PARAMETER	UOM	LOR	BH114_1.3-1.4 SOIL - 6/9/2022 SE236405.021	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH115_1.5-1.6 SOIL - 6/9/2022 SE236405.023	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024	BH116_1.5-1.6 SOIL - 6/9/2022 SE236405.025
% Moisture	%w/w	1	20.4	15.1	19.5	12.3	18.2

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH117_1.5-1.6 SOIL - 6/9/2022 SE236405.027	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH119_1.1-1.2 SOIL - 6/9/2022 SE236405.030
% Moisture	%w/w	1	22.2	12.0	19.1	14.9	22.5

PARAMETER	UOM	LOR	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031	QD1 SOIL - 6/9/2022 SE236405.032	QTB1 SOIL - 6/9/2022 SE236405.034
% Moisture	%w/w	1	22.7	16.0	<1.0

Fibre Identification in soil [AN602] Tested: 13/9/2022

PARAMETER	UOM	LOR	BH101_0.4-0.5 SOIL - 6/9/2022 SE236405.001	BH102_0.4-0.5 SOIL - 6/9/2022 SE236405.003	BH103_0.2-0.3 SOIL - 6/9/2022 SE236405.005	BH104_0.5-0.6 SOIL - 6/9/2022 SE236405.007	BH105_0.4-0.5 SOIL - 6/9/2022 SE236405.008
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH106_0.7-0.8 SOIL - 6/9/2022 SE236405.009	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405.011	BH109_0.2-0.3 SOIL - 6/9/2022 SE236405.012	BH110_0.2-0.3 SOIL - 6/9/2022 SE236405.014	BH111_0.3-0.4 SOIL - 6/9/2022 SE236405.015
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH112_0.3-0.4 SOIL - 6/9/2022 SE236405.017	BH113_0.4-0.5 SOIL - 6/9/2022 SE236405.019	BH114_0.2-0.3 SOIL - 6/9/2022 SE236405.020	BH115_0.2-0.3 SOIL - 6/9/2022 SE236405.022	BH116_0.2-0.3 SOIL - 6/9/2022 SE236405.024
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH117_0.2-0.3 SOIL - 6/9/2022 SE236405.026	BH118_0.3-0.4 SOIL - 6/9/2022 SE236405.028	BH119_0.2-0.3 SOIL - 6/9/2022 SE236405.029	BH120_0.2-0.3 SOIL - 6/9/2022 SE236405.031
Asbestos Detected	No unit	-	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01

VOCs in Water [AN433] Tested: 8/9/2022

PARAMETER	UOM	LOR	QR1 WATER - 6/9/2022 SE236405.033
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: 8/9/2022

PARAMETER	UOM	LOR	QR1 WATER - 6/9/2022 SE236405.033
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: 12/9/2022

PARAMETER	UOM	LOR	QR1 WATER - 6/9/2022 SE236405.033
TRH C10-C14	µg/L	50	-
TRH C15-C28	µg/L	200	-
TRH C29-C36	µg/L	200	-
TRH C37-C40	µg/L	200	-
TRH >C10-C16	µg/L	60	-
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	-
TRH >C16-C34 (F3)	µg/L	500	-
TRH >C34-C40 (F4)	µg/L	500	-
TRH C10-C40	µg/L	320	-

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 8/9/2022

PARAMETER	UOM	LOR	QR1 WATER - 6/9/2022 SE236405.033
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 8/9/2022

PARAMETER	UOM	LOR	QR1 WATER - 6/9/2022 SE236405.033
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(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	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/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	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.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		
***	Indicates that both * and ** apply.				

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

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

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

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

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Order Number	**E25358**
Samples	19

LABORATORY DETAILS

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SGS Reference	**SE236405 R0**
Date Received	07 Sep 2022
Date Reported	15 Sep 2022

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 Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

[redacted]

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE236405.001	BH101_0.4-0.5	Soil	89g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.003	BH102_0.4-0.5	Soil	102g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.005	BH103_0.2-0.3	Soil	143g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.007	BH104_0.5-0.6	Soil	140g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.008	BH105_0.4-0.5	Soil	129g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.009	BH106_0.7-0.8	Soil	110g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.011	BH108_0.4-0.5	Soil	130g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.012	BH109_0.2-0.3	Soil	133g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.014	BH110_0.2-0.3	Soil	95g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.015	BH111_0.3-0.4	Soil	119g Clay,Sand,Soil, Rocks	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.017	BH112_0.3-0.4	Soil	100g Clay,Sand,Soil, Rocks	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.019	BH113_0.4-0.5	Soil	141g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.020	BH114_0.2-0.3	Soil	141g Clay	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.022	BH115_0.2-0.3	Soil	111g Clay,Sand,Rock s	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE236405.024	BH116_0.2-0.3	Soil	70g Clay,Sand,Soil, Rocks	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.026	BH117_0.2-0.3	Soil	158g Clay,Sand,Rock s	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.028	BH118_0.3-0.4	Soil	119g Clay,Sand,Rock s	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.029	BH119_0.2-0.3	Soil	78g Clay,Sand,Soil, Rocks	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE236405.031	BH120_0.2-0.3	Soil	77g Clay,Sand,Soil, Rocks	06 Sep 2022	No Asbestos Found at RL of 0.1g/kg	<0.01

METHOD SUMMARY

SE236405 R0

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

FOOTNOTES

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

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

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

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

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

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

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Richard Wang
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Project	**E25358 160 Lord Sheffield Circuit, Penri**
Order Number	**E25358**
Samples	35

LABORATORY DETAILS

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Facsimile	+61 2 8594 0499
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SGS Reference	**SE236405A R0**
Date Received	16/9/2022
Date Reported	20/9/2022

COMMENTS

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

SIGNATORIES

[redacted]

Huong CRAWFORD
Production Manager

[redacted]

Ly Kim HA
Organic Section Head

[redacted]

Teresa NGUYEN
Organic Chemist

TCLP (Toxicity Characteristic Leaching Procedure) for Organics/SVOC [AN006] Tested: 19/9/2022

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405A.011
pH 1:20	pH Units	-	**7.1**
pH 1:20 plus HCL	pH Units	-	**2.2**
Extraction Solution Used	No unit	-	**1**
Mass of Sample Used*	g	-	**25**
Volume of ExtractionSolution Used*	mL	-	**500**
pH TCLP after 18 hours	pH Units	-	**4.9**

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract [AN420] Tested: 19/9/2022

PARAMETER	UOM	LOR	BH108_0.4-0.5 SOIL - 6/9/2022 SE236405A.011
Benzo(a)pyrene	µg/L	0.1	<0.1

METHOD	METHODOLOGY SUMMARY
AN006	Contaminants of interest in a waste material are leached out of the waste with a selected leaching solution under controlled conditions. The ratio of sample to extraction fluid is 100g to 2L (1 to 20 by mass). The concentration of each contaminant of interest is determined in the leachate by appropriate methods after separation from the sample by filtering. Base on USEPA 1311.
AN006	Extraction Fluid #1: This fluid is made by combining 128.6mL of dilute sodium hydroxide solution and 11.5mL glacial acetic acid with water and diluting to a volume of 2 litres. The pH of this fluid should be 4.93 ± 0.05.
AN006	Extraction Fluid #2: This fluid is made by diluting 5.7mL glacial acetic acid with water to a volume of 1 litre. The pH of this fluid should be 2.88 ± 0.05.
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 .

FOOTNOTES

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

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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CERTIFICATE OF ANALYSIS 305223

Client Details

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

Sample Details

Your Reference	**E25358, 160 Lord Sheffield Circuit, Penrith, NSW**
Number of Samples	1 Soil
Date samples received	08/09/2022
Date completed instructions received	08/09/2022

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	15/09/2022
Date of Issue	15/09/2022

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

Results Approved By
Jaimie Loa-Kum-Cheung, Senior Chemist
Josh Williams, Organics and LC Supervisor
Liam Timmins, Organic Instruments Team Leader

Authorised By

[redacted]

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		305223-1
Your Reference	UNITS	QT1
Date Sampled		06/09/2022
Type of sample		Soil
Date extracted	-	09/09/2022
Date analysed	-	12/09/2022
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH 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	%	106

svTRH (C10-C40) in Soil		
Our Reference		305223-1
Your Reference	UNITS	QT1
Date Sampled		06/09/2022
Type of sample		Soil
Date extracted	-	08/09/2022
Date analysed	-	10/09/2022
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	%	79

Acid Extractable metals in soil		
Our Reference		305223-1
Your Reference	UNITS	QT1
Date Sampled		06/09/2022
Type of sample		Soil
Date prepared	-	09/09/2022
Date analysed	-	14/09/2022
Lead	mg/kg	24
Arsenic	mg/kg	9
Cadmium	mg/kg	<0.4
Chromium	mg/kg	11
Copper	mg/kg	32
Mercury	mg/kg	<0.1
Nickel	mg/kg	9
Zinc	mg/kg	50

Moisture		
Our Reference		305223-1
Your Reference	UNITS	QT1
Date Sampled		06/09/2022
Type of sample		Soil
Date prepared	-	09/09/2022
Date analysed	-	12/09/2022
Moisture	%	12

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-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-2	[NT]
Date extracted	-			09/09/2022	[NT]	[NT]	[NT]	[NT]	09/09/2022	[NT]
Date analysed	-			12/09/2022	[NT]	[NT]	[NT]	[NT]	12/09/2022	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	111	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	106	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			08/09/2022	[NT]	[NT]	[NT]	[NT]	08/09/2022	[NT]
Date analysed	-			10/09/2022	[NT]	[NT]	[NT]	[NT]	10/09/2022	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	121	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	121	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	80	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date prepared	-			09/09/2022	[NT]	[NT]	[NT]	[NT]	09/09/2022	[NT]
Date analysed	-			14/09/2022	[NT]	[NT]	[NT]	[NT]	14/09/2022	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	98	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	96	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]

Result Definitions

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

Quality Control Definitions

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

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

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Richard Wang
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	richard.wang@eiaustralia.com.au
Project	**E25358 160 Lord Sheffield Circuit Penrit**
Order Number	**E25358**
Samples	8

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE237004 R0**
Date Received	21/9/2022
Date Reported	29/9/2022

COMMENTS

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

SIGNATORIES



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Chemist



Dong LIANG
Metals/Inorganics Team Leader



Ly Kim HA
Organic Section Head



Teresa NGUYEN
Organic Chemist

VOCs in Water [AN433] Tested: 28/9/2022

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004	GW-QD1 WATER - 21/9/2022 SE237004.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Naphthalene (VOC)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	<5	-
Chloromethane	µg/L	5	<5	<5	<5	<5	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	<0.3	-
Bromomethane	µg/L	10	<10	<10	<10	<10	-
Chloroethane	µg/L	5	<5	<5	<5	<5	-
Trichlorofluoromethane	µg/L	1	<1	<1	<1	<1	-
Acetone (2-propanone)	µg/L	10	<10	<10	<10	<10	-
Iodomethane	µg/L	5	<5	<5	<5	<5	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	<5	-
Allyl chloride	µg/L	2	<2	<2	<2	<2	-
Carbon disulfide	µg/L	2	<2	<2	<2	<2	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	**6**	<2	<2	**6**	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Vinyl acetate	µg/L	10	<10	<10	<10	<10	-
MEK (2-butanone)	µg/L	10	<10	<10	<10	<10	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	**0.9**	-
2-nitropropane	µg/L	100	<100	<100	<100	<100	-
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	<5	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
2-hexanone (MBK)	µg/L	5	<5	<5	<5	<5	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	**3.4**	**0.6**	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1	-

VOCs in Water [AN433] Tested: 28/9/2022 (continued)

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004	GW-QD1 WATER - 21/9/2022 SE237004.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	<0.3	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	-
Total VOC	µg/L	10	<10	<10	<10	<10	-

VOCs in Water [AN433] Tested: 28/9/2022 (continued)

PARAMETER	UOM	LOR	GW-QR1 WATER - 21/9/2022 SE237004.006	TS WATER - 21/9/2022 SE237004.007	TB WATER - 21/9/2022 SE237004.008
Benzene	µg/L	0.5	<0.5	[107%]	<0.5
Toluene	µg/L	0.5	<0.5	[100%]	<0.5
Ethylbenzene	µg/L	0.5	<0.5	[106%]	<0.5
m/p-xylene	µg/L	1	<1	[101%]	<1
o-xylene	µg/L	0.5	<0.5	[100%]	<0.5
Total Xylenes	µg/L	1.5	<1.5	-	<1.5
Total BTEX	µg/L	3	<3	-	<3
Naphthalene (VOC)	µg/L	0.5	<0.5	[95%]	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-	-
Chloromethane	µg/L	5	-	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-	-
Bromomethane	µg/L	10	-	-	-
Chloroethane	µg/L	5	-	-	-
Trichlorofluoromethane	µg/L	1	-	-	-
Acetone (2-propanone)	µg/L	10	-	-	-
Iodomethane	µg/L	5	-	-	-
1,1-dichloroethene	µg/L	0.5	-	-	-
Acrylonitrile	µg/L	0.5	-	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-	-
Allyl chloride	µg/L	2	-	-	-
Carbon disulfide	µg/L	2	-	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	-	-	-
1,1-dichloroethane	µg/L	0.5	-	-	-
Vinyl acetate	µg/L	10	-	-	-
MEK (2-butanone)	µg/L	10	-	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-	-
Bromochloromethane	µg/L	0.5	-	-	-
Chloroform (THM)	µg/L	0.5	-	-	-
2,2-dichloropropane	µg/L	0.5	-	-	-
1,2-dichloroethane	µg/L	0.5	-	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-	-
1,1-dichloropropene	µg/L	0.5	-	-	-
Carbon tetrachloride	µg/L	0.5	-	-	-
Dibromomethane	µg/L	0.5	-	-	-
1,2-dichloropropane	µg/L	0.5	-	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-	-
2-nitropropane	µg/L	100	-	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-	-
1,3-dichloropropane	µg/L	0.5	-	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-	-
2-hexanone (MBK)	µg/L	5	-	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-	-
Chlorobenzene	µg/L	0.5	-	-	-
Bromoform (THM)	µg/L	0.5	-	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-	-
trans-1,4-dichloro-2-butene	µg/L	1	-	-	-

VOCs in Water [AN433] Tested: 28/9/2022 (continued)

PARAMETER	UOM	LOR	GW-QR1 WATER - 21/9/2022 SE237004.006	TS WATER - 21/9/2022 SE237004.007	TB WATER - 21/9/2022 SE237004.008
Isopropylbenzene (Cumene)	µg/L	0.5	-	-	-
Bromobenzene	µg/L	0.5	-	-	-
n-propylbenzene	µg/L	0.5	-	-	-
2-chlorotoluene	µg/L	0.5	-	-	-
4-chlorotoluene	µg/L	0.5	-	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-	-
tert-butylbenzene	µg/L	0.5	-	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-	-
sec-butylbenzene	µg/L	0.5	-	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-	-
p-isopropyltoluene	µg/L	0.5	-	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-	-
n-butylbenzene	µg/L	0.5	-	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-	-
Hexachlorobutadiene	µg/L	0.5	-	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-	-
Total VOC	µg/L	10	-	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 28/9/2022

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004	GW-QD1 WATER - 21/9/2022 SE237004.005
TRH C6-C9	µg/L	40	<40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50	<50

PARAMETER	UOM	LOR	GW-QR1 WATER - 21/9/2022 SE237004.006
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: 28/9/2022

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004	GW-QD1 WATER - 21/9/2022 SE237004.005
TRH C10-C14	µg/L	50	<50	<50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60	<60	<60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	<320	<320	<320	<320

PARAMETER	UOM	LOR	GW-QR1 WATER - 21/9/2022 SE237004.006
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

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 28/9/2022

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1	<1

Total Phenolics in Water [AN295] Tested: 29/9/2022

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004
Total Phenols	mg/L	0.05	<0.05	<0.05	<0.05	<0.05

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 26/9/2022

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004	GW-QD1 WATER - 21/9/2022 SE237004.005
Arsenic, As	µg/L	1	<1	<1	<1	<1	<1
Cadmium, Cd	µg/L	0.1	<0.1	<0.1	<0.1	0.2	0.2
Chromium, Cr	µg/L	1	<1	<1	1	<1	<1
Copper, Cu	µg/L	1	2	2	2	2	2
Lead, Pb	µg/L	1	<1	<1	<1	<1	<1
Nickel, Ni	µg/L	1	4	5	4	16	16
Zinc, Zn	µg/L	5	17	<5	22	19	22

PARAMETER	UOM	LOR	GW-QR1 WATER - 21/9/2022 SE237004.006
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 27/9/2022

PARAMETER	UOM	LOR	GW-BH101M WATER - 21/9/2022 SE237004.001	GW-BH102M WATER - 21/9/2022 SE237004.002	GW-BH103M WATER - 21/9/2022 SE237004.003	GW-BH104M WATER - 21/9/2022 SE237004.004	GW-QD1 WATER - 21/9/2022 SE237004.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	GW-QR1 WATER - 21/9/2022 SE237004.006
Mercury	mg/L	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.
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).
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.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		
***	Indicates that both * and ** apply.				

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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CERTIFICATE OF ANALYSIS 306493

Client Details

Client	EI Australia
Attention	Andrew Ibrahim
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E25358, Penrith**
Number of Samples	1 Water
Date samples received	23/09/2022
Date completed instructions received	23/09/2022

Analysis Details

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

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

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

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

Report Details

Date results requested by	30/09/2022
Date of Issue	30/09/2022

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Results Approved By
Josh Williams, Organics and LC Supervisor
Loren Bardwell, Development Chemist

Authorised By

[redacted]

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		306493-1
Your Reference	UNITS	GW-QT1
Date Sampled		21/09/2022
Type of sample		Water
Date extracted	-	29/09/2022
Date analysed	-	29/09/2022
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	%	118
Surrogate toluene-d8	%	107
Surrogate 4-BFB	%	101

svTRH (C10-C40) in Water		
Our Reference		306493-1
Your Reference	UNITS	GW-QT1
Date Sampled		21/09/2022
Type of sample		Water
Date extracted	-	28/09/2022
Date analysed	-	28/09/2022
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	%	78

HM in water - dissolved		
Our Reference		306493-1
Your Reference	UNITS	GW-QT1
Date Sampled		21/09/2022
Type of sample		Water
Date prepared	-	26/09/2022
Date analysed	-	26/09/2022
Arsenic-Dissolved	µg/L	6
Cadmium-Dissolved	µg/L	0.2
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	3
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	14
Zinc-Dissolved	µg/L	33

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
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-W1	[NT]
Date extracted	-			29/09/2022	[NT]	[NT]	[NT]	[NT]	29/09/2022	[NT]
Date analysed	-			29/09/2022	[NT]	[NT]	[NT]	[NT]	29/09/2022	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	110	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	109	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate toluene-d8	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			28/09/2022	[NT]	[NT]	[NT]	[NT]	28/09/2022	[NT]
Date analysed	-			28/09/2022	[NT]	[NT]	[NT]	[NT]	28/09/2022	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	103	[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]	88	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	84	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	[NT]
Date prepared	-			26/09/2022	[NT]	[NT]	[NT]	[NT]	26/09/2022	[NT]
Date analysed	-			26/09/2022	[NT]	[NT]	[NT]	[NT]	26/09/2022	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[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]	96	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	113	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

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

Quality Control Definitions

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

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

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Dissolved Metals: no filtered, preserved sample was received, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
Note: there is a possibility some elements may be underestimated.

Appendix I -QA/QC Assessment

I1 Overview of QA/QC Program

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

Table I-1 QA/QC Protocols

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

Task	Description	Project
Laboratory QA/QC		
Laboratory Analysis	The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs.	Yes SGS - primary laboratory Envirolab - secondary laboratory Laboratory QA/QC analyses performed as per NATA accreditation requirements.
	Appropriate detection limits were used for the analyses to be undertaken.	PQLs for all tested parameters are presented in **Appendix H**.
	Methods followed are generally in accordance with the requirements of NEPC (2013).	Yes
Holding Times	Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses should be completed within standard guidelines.	Assessment of holding times has been undertaken by the laboratory.
Method Blanks	Each analysis procedure should include a method blank sample. The method blank contains the reagents used to prepare each sample for the given analysis. The purpose is to identify (check) contamination in the reagent materials and thereby assess potential bias. The results of each method blank should be <LOR.	Assessment of method blanks has been undertaken by the laboratory.
Laboratory Duplicates	Laboratory duplicates are field samples from the same batch that are analysed a number of times. They are randomly selected by the laboratory at a frequency of 1 per 10 primary samples, in order to assess precision of the analytical method.	Assessment of laboratory duplicates has been undertaken by the laboratory. Calculated RPDs generally within acceptable ranges. The following duplicates exceeded acceptance criteria due to heterogeneity (although results were within 5 times LOR): - LB258075.025
Laboratory Control Standards	A laboratory control standard is a standard reference material used to prepare primary standards. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. Laboratory control samples should be performed on a frequency of 1 per 20 samples or at least one per analytical run.	Assessment of laboratory control standards has been undertaken by the laboratory.

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

Calculation of Relative Percentage Difference (RPD)

The RPD values were calculated using the following equation:

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

Where:

C_O = Concentration obtained for the primary sample; and

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

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

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

I2 Field QA/QC

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

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

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

Table I-2 Field Data Quality Indicators

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

Conclusion for the Field QA/QC

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

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

I3 Laboratory QA/QC

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

Table J-3 Laboratory Data Quality Indicators

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

Conclusions for the Laboratory QA/QC

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

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

I4 Summary of Project QA/QC

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

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

Sample identification	Sampled Date	Description	TRH				BTEX				Heavy Metals							
			F1*	F2**	F3 ($>C_{16}$ - C_{34})	F4 ($>C_{34}$ - C_{40})	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
BH101_0.4-0.5	6/9/2022	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	13	<0.3	14	29	29	<0.05	8.7	57
QD1		Duplicate of BH101_0.4-0.5	<25	<25	95	130	<0.1	<0.1	<0.1	<0.3	10	<0.3	12	32	23	<0.05	8.4	56
RPD (%)			***0.0***	***0.0***	***7.1***	***10.5***	***0.0***	***0.0***	***0.0***	***0.0***	***26.1***	***0.0***	***15.4***	***9.8***	***23.1***	***0.0***	***3.5***	***1.8***
BH4M	21/9/2022	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	0.2	<1	2	<1	<0.1	16	19
GW-QD1		Duplicate of BH4M	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	0.2	<1	2	<1	<0.1	16	22
RPD (%)			***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***14.6***
Inter-laboratory Duplicate																		
BH101_0.4-0.5	6/9/2022	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	13	<0.3	14	29	29	<0.05	8.7	57
QT1		Duplicate of BH101_0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	9	<0.4	11	32	24	<0.1	9	50
RPD (%)			***0.0***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***36.4***	***NA***	***24.0***	***9.8***	***18.9***	***NA***	***3.4***	***13.1***
BH4M	21/9/2022	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	0.2	<1	2	<1	<0.1	16	19
GW-QT1		Duplicate of BH4M	<10	<50	<100	<100	<1	<1	<1	<3	6	0.2	<1	3	<1	<0.05	14	33
RPD (%)			***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	**153.8**	***0.0***	***0.0***	***40.0***	***0.0***	***NA***	***13.3***	**53.8**
QTB1	6/09/2022	Trip blank	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
QTS1		Trip spike	-	-	-	-	[108%]	[108%]	[106%]	[106%]	-	-	-	-	-	-	-	-
QR1		Rinsate	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	0.5	<1	<1	<1	<0.1	<1	<5
GW-QTB1	21/09/2022	Trip blank	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
GW-QTS1		Trip spike	-	-	-	-	[107%]	[100%]	[106%]	[100%]	-	-	-	-	-	-	-	-
GW-QR1		Rinsate	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5

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

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

NOTE:

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

* - to obtain F1 subtract the sum of BTEX concentrations from the C_6-C_{10} fraction

** - to obtain F2 subtract naphthalene from the > C_{10}-C_{16} fraction

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Appendix J -Laboratory QA/QC Policies and DQOs

STATEMENT OF QA/QC PERFORMANCE

SE236405 R0

CLIENT DETAILS

Contact	Richard Wang
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	richard.wang@eiaustralia.com.au
Project	**E25358 160 Lord Sheffield Circuit, Penri**
Order Number	**E25358**
Samples	35

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE236405 R0**
Date Received	07 Sep 2022
Date Reported	19 Sep 2022

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	4 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	34 Soil, 1 Water
Date documentation received	7/9/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13.5C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE236405 R0

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

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

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

Fibre Identification in soil — **Method: ME-(AU)-[ENV]AN602**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258170	06 Sep 2022	07 Sep 2022	06 Sep 2023	13 Sep 2022	06 Sep 2023	15 Sep 2022

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	SE236405.033	LB257783	06 Sep 2022	07 Sep 2022	04 Oct 2022	08 Sep 2022	04 Oct 2022	09 Sep 2022

Mercury in Soil — **Method: ME-(AU)-[ENV]AN312**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258189	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022
QD1	SE236405.032	LB258197	06 Sep 2022	07 Sep 2022	04 Oct 2022	13 Sep 2022	04 Oct 2022	14 Sep 2022

HOLDING TIME SUMMARY

SE236405 R0

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

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

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

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258092	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
QD1	SE236405.032	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022
QTB1	SE236405.034	LB258094	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	17 Sep 2022	14 Sep 2022

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

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

OC Pesticides in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH116_1.5-1.6	SE236405.025	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
QD1	SE236405.032	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

OP Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
QD1	SE236405.032	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

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
BH101_0.4-0.5	SE236405.001	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH111_1.5-1.6	SE236405.016	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
QD1	SE236405.032	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
QD1	SE236405.032	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

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
BH101_0.4-0.5	SE236405.001	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022

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

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

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

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH104_0.5-0.6	SE236405.007	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258187	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022
QD1	SE236405.032	LB258195	06 Sep 2022	07 Sep 2022	05 Mar 2023	13 Sep 2022	05 Mar 2023	14 Sep 2022

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	SE236405.033	LB257748	06 Sep 2022	07 Sep 2022	05 Mar 2023	08 Sep 2022	05 Mar 2023	08 Sep 2022

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258070	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH118_0.3-0.4	SE236405.028	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022
QD1	SE236405.032	LB258075	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

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	SE236405.033	LB258008	06 Sep 2022	07 Sep 2022	13 Sep 2022	12 Sep 2022	22 Oct 2022	14 Sep 2022

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH105_0.4-0.5	SE236405.008	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
QD1	SE236405.032	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
QTB1	SE236405.034	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
QTS1	SE236405.035	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE236405.033	LB257828	06 Sep 2022	07 Sep 2022	20 Sep 2022	08 Sep 2022	20 Sep 2022	13 Sep 2022

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101_0.4-0.5	SE236405.001	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH101_1.5-1.6	SE236405.002	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH102_0.4-0.5	SE236405.003	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH102_1.5-1.6	SE236405.004	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH103_0.2-0.3	SE236405.005	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH103_1.7-1.8	SE236405.006	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH104_0.5-0.6	SE236405.007	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022

HOLDING TIME SUMMARY

SE236405 R0

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

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

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

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
BH105_0.4-0.5	SE236405.008	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH106_0.7-0.8	SE236405.009	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH106_1.2-1.3	SE236405.010	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH108_0.4-0.5	SE236405.011	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH109_0.2-0.3	SE236405.012	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH109_1.5-1.6	SE236405.013	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH110_0.2-0.3	SE236405.014	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH111_0.3-0.4	SE236405.015	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH111_1.5-1.6	SE236405.016	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH112_0.3-0.4	SE236405.017	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH112_1.5-1.6	SE236405.018	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH113_0.4-0.5	SE236405.019	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH114_0.2-0.3	SE236405.020	LB258090	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH114_1.3-1.4	SE236405.021	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH115_0.2-0.3	SE236405.022	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH115_1.5-1.6	SE236405.023	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH116_0.2-0.3	SE236405.024	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH116_1.5-1.6	SE236405.025	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH117_0.2-0.3	SE236405.026	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH117_1.5-1.6	SE236405.027	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH118_0.3-0.4	SE236405.028	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH119_0.2-0.3	SE236405.029	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH119_1.1-1.2	SE236405.030	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
BH120_0.2-0.3	SE236405.031	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
QD1	SE236405.032	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
QTB1	SE236405.034	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022
QTS1	SE236405.035	LB258091	06 Sep 2022	07 Sep 2022	20 Sep 2022	12 Sep 2022	20 Sep 2022	14 Sep 2022

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	SE236405.033	LB257828	06 Sep 2022	07 Sep 2022	20 Sep 2022	08 Sep 2022	20 Sep 2022	13 Sep 2022

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)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	102
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	129
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	110
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	110
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	103
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	110
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	109
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	95
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	88
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	80
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	82
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	79
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	80
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	88
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	94
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	92
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	92
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	97
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	95

OP Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	92
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	88
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	94
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	91
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	92
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	89
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	91
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	88
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	96
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	95
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	93
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	88
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	88
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	96
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	96
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	100
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	99
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	96
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	109
d14-p-terphenyl (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	96
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	90
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	95
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	93
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	96
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	89
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	97
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	92
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	100
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	94
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	93
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	90
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	90
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	97
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	97
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	100
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	99
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	97
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	110

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil — **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH101_0.4-0.5	SE236405.001	%	70 - 130%	92
	BH101_1.5-1.6	SE236405.002	%	70 - 130%	84
	BH102_0.4-0.5	SE236405.003	%	70 - 130%	88
	BH102_1.5-1.6	SE236405.004	%	70 - 130%	94
	BH103_0.2-0.3	SE236405.005	%	70 - 130%	94
	BH103_1.7-1.8	SE236405.006	%	70 - 130%	88
	BH104_0.5-0.6	SE236405.007	%	70 - 130%	91
	BH105_0.4-0.5	SE236405.008	%	70 - 130%	92
	BH106_0.7-0.8	SE236405.009	%	70 - 130%	89
	BH106_1.2-1.3	SE236405.010	%	70 - 130%	101
	BH108_0.4-0.5	SE236405.011	%	70 - 130%	91
	BH109_0.2-0.3	SE236405.012	%	70 - 130%	88
	BH109_1.5-1.6	SE236405.013	%	70 - 130%	89
	BH110_0.2-0.3	SE236405.014	%	70 - 130%	96
	BH111_0.3-0.4	SE236405.015	%	70 - 130%	95
	BH111_1.5-1.6	SE236405.016	%	70 - 130%	90
	BH112_0.3-0.4	SE236405.017	%	70 - 130%	93
	BH112_1.5-1.6	SE236405.018	%	70 - 130%	90
	BH113_0.4-0.5	SE236405.019	%	70 - 130%	88
	BH114_0.2-0.3	SE236405.020	%	70 - 130%	88
	BH114_1.3-1.4	SE236405.021	%	70 - 130%	99
	BH115_0.2-0.3	SE236405.022	%	70 - 130%	96
	BH115_1.5-1.6	SE236405.023	%	70 - 130%	96
	BH116_0.2-0.3	SE236405.024	%	70 - 130%	96
	BH116_1.5-1.6	SE236405.025	%	70 - 130%	99
	BH117_0.2-0.3	SE236405.026	%	70 - 130%	100
	BH117_1.5-1.6	SE236405.027	%	70 - 130%	99
	BH118_0.3-0.4	SE236405.028	%	70 - 130%	99
	BH119_0.2-0.3	SE236405.029	%	70 - 130%	96
	BH119_1.1-1.2	SE236405.030	%	70 - 130%	99
	BH120_0.2-0.3	SE236405.031	%	70 - 130%	109
d14-p-terphenyl (Surrogate)	BH101_0.4-0.5	SE236405.001	%	70 - 130%	96
	BH101_1.5-1.6	SE236405.002	%	70 - 130%	89
	BH102_0.4-0.5	SE236405.003	%	70 - 130%	90
	BH102_1.5-1.6	SE236405.004	%	70 - 130%	95
	BH103_0.2-0.3	SE236405.005	%	70 - 130%	95
	BH103_1.7-1.8	SE236405.006	%	70 - 130%	91
	BH104_0.5-0.6	SE236405.007	%	70 - 130%	93
	BH105_0.4-0.5	SE236405.008	%	70 - 130%	96
	BH106_0.7-0.8	SE236405.009	%	70 - 130%	89
	BH106_1.2-1.3	SE236405.010	%	70 - 130%	106
	BH108_0.4-0.5	SE236405.011	%	70 - 130%	97
	BH109_0.2-0.3	SE236405.012	%	70 - 130%	92
	BH109_1.5-1.6	SE236405.013	%	70 - 130%	94
	BH110_0.2-0.3	SE236405.014	%	70 - 130%	100
	BH111_0.3-0.4	SE236405.015	%	70 - 130%	94
	BH111_1.5-1.6	SE236405.016	%	70 - 130%	93
	BH112_0.3-0.4	SE236405.017	%	70 - 130%	93
	BH112_1.5-1.6	SE236405.018	%	70 - 130%	95
	BH113_0.4-0.5	SE236405.019	%	70 - 130%	90
	BH114_0.2-0.3	SE236405.020	%	70 - 130%	90
	BH114_1.3-1.4	SE236405.021	%	70 - 130%	99
	BH115_0.2-0.3	SE236405.022	%	70 - 130%	97
	BH115_1.5-1.6	SE236405.023	%	70 - 130%	92
	BH116_0.2-0.3	SE236405.024	%	70 - 130%	97
	BH116_1.5-1.6	SE236405.025	%	70 - 130%	99
	BH117_0.2-0.3	SE236405.026	%	70 - 130%	100
	BH117_1.5-1.6	SE236405.027	%	70 - 130%	99
	BH118_0.3-0.4	SE236405.028	%	70 - 130%	99
	BH119_0.2-0.3	SE236405.029	%	70 - 130%	97
	BH119_1.1-1.2	SE236405.030	%	70 - 130%	101

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	BH120_0.2-0.3	SE236405.031	%	70 - 130%	110
d5-nitrobenzene (Surrogate)	BH101_0.4-0.5	SE236405.001	%	70 - 130%	104
	BH101_1.5-1.6	SE236405.002	%	70 - 130%	101
	BH102_0.4-0.5	SE236405.003	%	70 - 130%	100
	BH102_1.5-1.6	SE236405.004	%	70 - 130%	103
	BH103_0.2-0.3	SE236405.005	%	70 - 130%	106
	BH103_1.7-1.8	SE236405.006	%	70 - 130%	102
	BH104_0.5-0.6	SE236405.007	%	70 - 130%	106
	BH105_0.4-0.5	SE236405.008	%	70 - 130%	108
	BH106_0.7-0.8	SE236405.009	%	70 - 130%	99
	BH106_1.2-1.3	SE236405.010	%	70 - 130%	117
	BH108_0.4-0.5	SE236405.011	%	70 - 130%	104
	BH109_0.2-0.3	SE236405.012	%	70 - 130%	105
	BH109_1.5-1.6	SE236405.013	%	70 - 130%	101
	BH110_0.2-0.3	SE236405.014	%	70 - 130%	108
	BH111_0.3-0.4	SE236405.015	%	70 - 130%	102
	BH111_1.5-1.6	SE236405.016	%	70 - 130%	105
	BH112_0.3-0.4	SE236405.017	%	70 - 130%	102
	BH112_1.5-1.6	SE236405.018	%	70 - 130%	102
	BH113_0.4-0.5	SE236405.019	%	70 - 130%	100
	BH114_0.2-0.3	SE236405.020	%	70 - 130%	100
	BH114_1.3-1.4	SE236405.021	%	70 - 130%	112
	BH115_0.2-0.3	SE236405.022	%	70 - 130%	110
	BH115_1.5-1.6	SE236405.023	%	70 - 130%	100
	BH116_0.2-0.3	SE236405.024	%	70 - 130%	111
	BH116_1.5-1.6	SE236405.025	%	70 - 130%	112
	BH117_0.2-0.3	SE236405.026	%	70 - 130%	114
	BH117_1.5-1.6	SE236405.027	%	70 - 130%	113
	BH118_0.3-0.4	SE236405.028	%	70 - 130%	114
	BH119_0.2-0.3	SE236405.029	%	70 - 130%	109
	BH119_1.1-1.2	SE236405.030	%	70 - 130%	113
	BH120_0.2-0.3	SE236405.031	%	70 - 130%	123

PCBs in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	102
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	129
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	110
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	110
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	103
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	110
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	109
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	95
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	88
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	80
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	82
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	79
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	80
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	88
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	94
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	92
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	92
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	97
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	95

VOC's in Soil — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	92
	BH101_1.5-1.6	SE236405.002	%	60 - 130%	88
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	95
	BH102_1.5-1.6	SE236405.004	%	60 - 130%	86
	BH103_0.2-0.3	SE236405.005	%	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 %
Bromofluorobenzene (Surrogate)	BH103_1.7-1.8	SE236405.006	%	60 - 130%	92
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	87
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	82
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	90
	BH106_1.2-1.3	SE236405.010	%	60 - 130%	90
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	85
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	88
	BH109_1.5-1.6	SE236405.013	%	60 - 130%	100
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	85
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	84
	BH111_1.5-1.6	SE236405.016	%	60 - 130%	86
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	77
	BH112_1.5-1.6	SE236405.018	%	60 - 130%	97
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	91
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	89
	BH114_1.3-1.4	SE236405.021	%	60 - 130%	91
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	89
	BH115_1.5-1.6	SE236405.023	%	60 - 130%	93
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	85
	BH116_1.5-1.6	SE236405.025	%	60 - 130%	93
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	88
	BH117_1.5-1.6	SE236405.027	%	60 - 130%	89
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	90
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	90
	BH119_1.1-1.2	SE236405.030	%	60 - 130%	94
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	88
	QD1	SE236405.032	%	60 - 130%	86
	QTB1	SE236405.034	%	60 - 130%	86
	QTS1	SE236405.035	%	60 - 130%	85
d4-1,2-dichloroethane (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	81
	BH101_1.5-1.6	SE236405.002	%	60 - 130%	73
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	90
	BH102_1.5-1.6	SE236405.004	%	60 - 130%	78
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	79
	BH103_1.7-1.8	SE236405.006	%	60 - 130%	78
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	77
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	73
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	81
	BH106_1.2-1.3	SE236405.010	%	60 - 130%	81
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	74
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	82
	BH109_1.5-1.6	SE236405.013	%	60 - 130%	82
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	79
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	83
	BH111_1.5-1.6	SE236405.016	%	60 - 130%	79
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	72
	BH112_1.5-1.6	SE236405.018	%	60 - 130%	89
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	79
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	76
	BH114_1.3-1.4	SE236405.021	%	60 - 130%	87
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	87
	BH115_1.5-1.6	SE236405.023	%	60 - 130%	91
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	81
	BH116_1.5-1.6	SE236405.025	%	60 - 130%	91
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	84
	BH117_1.5-1.6	SE236405.027	%	60 - 130%	83
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	88
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	85
	BH119_1.1-1.2	SE236405.030	%	60 - 130%	91
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	85
	QD1	SE236405.032	%	60 - 130%	86

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)	QTB1	SE236405.034	%	60 - 130%	87
	QTS1	SE236405.035	%	60 - 130%	87
d8-toluene (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	81
	BH101_1.5-1.6	SE236405.002	%	60 - 130%	71
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	86
	BH102_1.5-1.6	SE236405.004	%	60 - 130%	78
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	79
	BH103_1.7-1.8	SE236405.006	%	60 - 130%	78
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	75
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	74
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	80
	BH106_1.2-1.3	SE236405.010	%	60 - 130%	79
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	72
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	81
	BH109_1.5-1.6	SE236405.013	%	60 - 130%	81
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	78
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	77
	BH111_1.5-1.6	SE236405.016	%	60 - 130%	78
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	67
	BH112_1.5-1.6	SE236405.018	%	60 - 130%	90
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	77
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	73
	BH114_1.3-1.4	SE236405.021	%	60 - 130%	90
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	90
	BH115_1.5-1.6	SE236405.023	%	60 - 130%	94
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	84
	BH116_1.5-1.6	SE236405.025	%	60 - 130%	94
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	87
	BH117_1.5-1.6	SE236405.027	%	60 - 130%	87
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	90
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	88
	BH119_1.1-1.2	SE236405.030	%	60 - 130%	94
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	89
	QD1	SE236405.032	%	60 - 130%	89
	QTB1	SE236405.034	%	60 - 130%	89
	QTS1	SE236405.035	%	60 - 130%	89

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE236405.033	%	40 - 130%	106
d4-1,2-dichloroethane (Surrogate)	QR1	SE236405.033	%	40 - 130%	96
d8-toluene (Surrogate)	QR1	SE236405.033	%	40 - 130%	102

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	92
	BH101_1.5-1.6	SE236405.002	%	60 - 130%	88
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	95
	BH102_1.5-1.6	SE236405.004	%	60 - 130%	86
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	89
	BH103_1.7-1.8	SE236405.006	%	60 - 130%	92
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	87
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	82
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	90
	BH106_1.2-1.3	SE236405.010	%	60 - 130%	90
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	85
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	88
	BH109_1.5-1.6	SE236405.013	%	60 - 130%	100
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	85
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	84
	BH111_1.5-1.6	SE236405.016	%	60 - 130%	86
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	77

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH112_1.5-1.6	SE236405.018	%	60 - 130%	97
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	91
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	89
	BH114_1.3-1.4	SE236405.021	%	60 - 130%	91
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	89
	BH115_1.5-1.6	SE236405.023	%	60 - 130%	93
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	85
	BH116_1.5-1.6	SE236405.025	%	60 - 130%	93
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	88
	BH117_1.5-1.6	SE236405.027	%	60 - 130%	89
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	90
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	90
	BH119_1.1-1.2	SE236405.030	%	60 - 130%	94
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	88
	QD1	SE236405.032	%	60 - 130%	86
d4-1,2-dichloroethane (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	81
	BH101_1.5-1.6	SE236405.002	%	60 - 130%	73
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	90
	BH102_1.5-1.6	SE236405.004	%	60 - 130%	78
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	79
	BH103_1.7-1.8	SE236405.006	%	60 - 130%	78
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	77
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	73
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	81
	BH106_1.2-1.3	SE236405.010	%	60 - 130%	81
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	74
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	82
	BH109_1.5-1.6	SE236405.013	%	60 - 130%	82
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	79
	BH111_0.3-0.4	SE236405.015	%	60 - 130%	83
	BH111_1.5-1.6	SE236405.016	%	60 - 130%	79
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	72
	BH112_1.5-1.6	SE236405.018	%	60 - 130%	89
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	79
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	76
	BH114_1.3-1.4	SE236405.021	%	60 - 130%	87
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	87
	BH115_1.5-1.6	SE236405.023	%	60 - 130%	91
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	81
	BH116_1.5-1.6	SE236405.025	%	60 - 130%	91
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	84
	BH117_1.5-1.6	SE236405.027	%	60 - 130%	83
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	88
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	85
	BH119_1.1-1.2	SE236405.030	%	60 - 130%	91
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	85
	QD1	SE236405.032	%	60 - 130%	86
d8-toluene (Surrogate)	BH101_0.4-0.5	SE236405.001	%	60 - 130%	81
	BH101_1.5-1.6	SE236405.002	%	60 - 130%	71
	BH102_0.4-0.5	SE236405.003	%	60 - 130%	86
	BH102_1.5-1.6	SE236405.004	%	60 - 130%	78
	BH103_0.2-0.3	SE236405.005	%	60 - 130%	79
	BH103_1.7-1.8	SE236405.006	%	60 - 130%	78
	BH104_0.5-0.6	SE236405.007	%	60 - 130%	75
	BH105_0.4-0.5	SE236405.008	%	60 - 130%	74
	BH106_0.7-0.8	SE236405.009	%	60 - 130%	80
	BH106_1.2-1.3	SE236405.010	%	60 - 130%	79
	BH108_0.4-0.5	SE236405.011	%	60 - 130%	72
	BH109_0.2-0.3	SE236405.012	%	60 - 130%	81
	BH109_1.5-1.6	SE236405.013	%	60 - 130%	81
	BH110_0.2-0.3	SE236405.014	%	60 - 130%	78

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH111_0.3-0.4	SE236405.015	%	60 - 130%	77
	BH111_1.5-1.6	SE236405.016	%	60 - 130%	78
	BH112_0.3-0.4	SE236405.017	%	60 - 130%	67
	BH112_1.5-1.6	SE236405.018	%	60 - 130%	90
	BH113_0.4-0.5	SE236405.019	%	60 - 130%	77
	BH114_0.2-0.3	SE236405.020	%	60 - 130%	73
	BH114_1.3-1.4	SE236405.021	%	60 - 130%	90
	BH115_0.2-0.3	SE236405.022	%	60 - 130%	90
	BH115_1.5-1.6	SE236405.023	%	60 - 130%	94
	BH116_0.2-0.3	SE236405.024	%	60 - 130%	84
	BH116_1.5-1.6	SE236405.025	%	60 - 130%	94
	BH117_0.2-0.3	SE236405.026	%	60 - 130%	87
	BH117_1.5-1.6	SE236405.027	%	60 - 130%	87
	BH118_0.3-0.4	SE236405.028	%	60 - 130%	90
	BH119_0.2-0.3	SE236405.029	%	60 - 130%	88
	BH119_1.1-1.2	SE236405.030	%	60 - 130%	94
	BH120_0.2-0.3	SE236405.031	%	60 - 130%	89
	QD1	SE236405.032	%	60 - 130%	89

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE236405.033	%	40 - 130%	106
d4-1,2-dichloroethane (Surrogate)	QR1	SE236405.033	%	60 - 130%	96
d8-toluene (Surrogate)	QR1	SE236405.033	%	40 - 130%	102

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
LB257783.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB258189.001	Mercury	mg/kg	0.05	<0.05
LB258197.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB258070.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	110
LB258075.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	74

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

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

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB258070.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	99
		d14-p-terphenyl (Surrogate)	%	-	98
LB258075.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB258070.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	113
		2-fluorobiphenyl (Surrogate)	%	-	99
		d14-p-terphenyl (Surrogate)	%	-	98
LB258075.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1

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
LB258075.001		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)	%	-	117
		2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	100

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB258070.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	110
LB258075.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	74

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

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

Sample Number	Parameter	Units	LOR	Result
LB258187.001	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
LB258195.001	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
LB257748.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR

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.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB258070.001	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
LB258075.001	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
LB258008.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB258090.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	91
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	101
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB258091.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	94
		d8-toluene (Surrogate)	%	-	96
		Bromofluorobenzene (Surrogate)	%	-	97
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB257828.001	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)	%	-	96
		d8-toluene (Surrogate)	%	-	100
		Bromofluorobenzene (Surrogate)	%	-	106

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB258090.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	91
LB258091.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	94

Volatile Petroleum Hydrocarbons in Water

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.

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

Sample Number		Parameter	Units	LOR	Result
LB257828.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	100
		Bromofluorobenzene (Surrogate)	%	-	106

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 %
SE236405.033	LB257783.018	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 %
SE236405.010	LB258189.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE236405.019	LB258189.024	Mercury	mg/kg	0.05	<0.05	<0.05	169	0
SE236405.029	LB258197.014	Mercury	mg/kg	0.05	<0.05	<0.05	152	0
SE236407.004	LB258197.022	Mercury	mg/kg	0.05	0.08	0.08	91	1

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.010	LB258092.011	% Moisture	%w/w	1	21.6	20.5	35	5
SE236405.020	LB258092.022	% Moisture	%w/w	1	13.8	16.5	37	18
SE236405.027	LB258094.011	% Moisture	%w/w	1	12.0	12.2	38	2
SE236495.004	LB258094.022	% Moisture	%w/w	1	8.9	9.7	41	9
SE236495.005	LB258094.024	% Moisture	%w/w	1	13.6	11.6	38	15

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.009	LB258070.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.15	30	10
SE236405.020	LB258070.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0

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

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

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

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

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 %
SE236405.020	LB258070.025		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.12	30	2
SE236495.001	LB258075.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	96	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	30	3
SE236495.005	LB258075.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0

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 %
SE236495.005	LB258075.025		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	0.3	<0.2	86	26
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	30	4

OP Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.009	LB258070.027		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	7
SE236405.020	LB258070.025		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	9
SE236495.005	LB258075.025		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	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

OP Pesticides in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236495.005	LB258075.025	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.009	LB258070.027		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	10
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	7
SE236405.020	LB258070.025		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	0.3	0.2	70	40
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.5	0.3	56	51
			Pyrene	mg/kg	0.1	0.4	0.3	59	41
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.2	86	22
			Chrysene	mg/kg	0.1	0.2	0.2	87	17
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	0.2	72	8
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	0.1	121	0
			Benzo(a)pyrene	mg/kg	0.1	0.2	0.2	87	6
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.1	107	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.1	107	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	0.3	0.2	92	7
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	0.4	0.3	97	5
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	0.3	0.3	78	6
			Total PAH (18)	mg/kg	0.8	2.4	1.9	35	25
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	8
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	9
SE236405.027	LB258075.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0

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 %
SE236405.027	LB258075.014		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE236495.005	LB258075.025		Naphthalene	mg/kg	0.1	<0.1	<0.1	151	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	0.4	0.5	54	21
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	0.1	145	9
			Phenanthrene	mg/kg	0.1	0.9	1.3	39	37
			Anthracene	mg/kg	0.1	0.3	0.4	56	36
			Fluoranthene	mg/kg	0.1	2.5	3.5	33	33 ②
			Pyrene	mg/kg	0.1	2.8	3.8	33	32
			Benzo(a)anthracene	mg/kg	0.1	1.6	2.1	35	30
			Chrysene	mg/kg	0.1	1.4	1.9	36	29
			Benzo(b&j)fluoranthene	mg/kg	0.1	1.7	2.2	35	23
			Benzo(k)fluoranthene	mg/kg	0.1	0.7	0.9	42	25
			Benzo(a)pyrene	mg/kg	0.1	1.6	2.1	35	25
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.0	1.3	39	23
			Dibenzo(ah)anthracene	mg/kg	0.1	0.3	0.3	65	23
			Benzo(ghi)perylene	mg/kg	0.1	1.1	1.4	38	22
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	2.4	3.1	17	25 ⑨
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	2.4	3.1	21	25 ⑨
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	2.4	3.1	17	25 ⑨
			Total PAH (18)	mg/kg	0.8	16	22	31	29
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.009	LB258070.027		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	10
SE236405.020	LB258070.025		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0

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

PCBs in Soil (continued) — **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.020	LB258070.025		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2
SE236495.001	LB258075.027		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	3
SE236495.005	LB258075.025		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	4

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 %
SE236405.010	LB258187.014	Arsenic, As	mg/kg	1	5	5	49	9
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	11	11	35	5
		Copper, Cu	mg/kg	0.5	20	21	32	6
		Nickel, Ni	mg/kg	0.5	3.5	3.5	44	2
		Lead, Pb	mg/kg	1	10	8	41	21
		Zinc, Zn	mg/kg	2	17	17	42	3
SE236405.019	LB258187.024	Arsenic, As	mg/kg	1	6	6	46	13
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	15	11	34	29
		Copper, Cu	mg/kg	0.5	30	34	32	12
		Nickel, Ni	mg/kg	0.5	10	7.8	36	29
		Lead, Pb	mg/kg	1	31	28	33	10
		Zinc, Zn	mg/kg	2	34	32	36	6
SE236405.029	LB258195.014	Arsenic, As	mg/kg	1	14	15	37	1
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	15	15	33	3
		Copper, Cu	mg/kg	0.5	27	27	32	1
		Nickel, Ni	mg/kg	0.5	9.3	10	35	7
		Lead, Pb	mg/kg	1	30	31	33	3
		Zinc, Zn	mg/kg	2	46	53	34	14
SE236407.004	LB258195.022	Arsenic, As	mg/kg	1	9	10	40	7
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	15	16	33	8
		Copper, Cu	mg/kg	0.5	20	22	32	6
		Nickel, Ni	mg/kg	0.5	9.6	9.8	35	2
		Lead, Pb	mg/kg	1	57	58	32	3
		Zinc, Zn	mg/kg	2	79	83	32	5

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 %
SE236364.001	LB257748.014	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	148	0
		Copper, Cu	µg/L	1	1	1	94	5
		Lead, Pb	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	27	26	34	4
SE236405.033	LB257748.019	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.009	LB258070.027		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
SE236405.020	LB258070.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (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
SE236405.027	LB258075.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE236495.005	LB258075.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	69	68	96	1
			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	191	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	92	<90	129	2
			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

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

TRH (Total Recoverable Hydrocarbons) in Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236372.013	LB258008.028		TRH C10-C14	µg/L	50	0	<50	200	0
			TRH C15-C28	µg/L	200	0	<200	200	0
			TRH C29-C36	µg/L	200	0	<200	200	0
			TRH C37-C40	µg/L	200	0	<200	200	0
			TRH C10-C40	µg/L	320	0	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	0	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	-0.0176198	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	0	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	0	<500	200	0
SE236377.006	LB258008.029		TRH C10-C14	µg/L	50	0	<50	200	0
			TRH C15-C28	µg/L	200	0	<200	200	0
			TRH C29-C36	µg/L	200	0	<200	200	0
			TRH C37-C40	µg/L	200	0	<200	200	0
			TRH C10-C40	µg/L	320	0	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	0	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	-0.0404234	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	0	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	0	<500	200	0
SE236482.009	LB258008.027		TRH C10-C14	µg/L	50	0	<50	200	0
			TRH C15-C28	µg/L	200	0	<200	200	0
			TRH C29-C36	µg/L	200	0	<200	200	0
			TRH C37-C40	µg/L	200	0	<200	200	0
			TRH C10-C40	µg/L	320	0	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	0	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	0	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	0	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	0	<500	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.010	LB258090.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Hydrocarbons	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	8.4	50	4
			d8-toluene (Surrogate)	mg/kg	-	7.9	7.9	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.8	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE236405.020	LB258090.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Hydrocarbons	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	-	7.6	7.9	50	4
			d8-toluene (Surrogate)	mg/kg	-	7.3	7.8	50	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.6	50	4
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE236405.027	LB258091.015	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Hydrocarbons	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.3	8.3	50	0
			d8-toluene (Surrogate)	mg/kg	-	8.7	8.6	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	9.0	50	1

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 %
SE236405.027	LB258091.015	Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE236495.005	LB258091.032	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Hydrocarbons	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	8.1	50	8
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.2	50	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	8.1	50	9
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.033	LB257828.021	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
		Hydrocarbons	Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.6	9.9	30	2
			d8-toluene (Surrogate)	µg/L	-	10.2	10.0	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	10.6	10.5	30	1
SE236421.003	LB257828.022	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
		Hydrocarbons	Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	9.9	30	2
			d8-toluene (Surrogate)	µg/L	-	10.0	10.1	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.6	10.7	30	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236405.010	LB258090.014		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	-	8.1	8.4	30	4
			d8-toluene (Surrogate)	mg/kg	-	7.9	7.9	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE236405.020	LB258090.025		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	-	7.6	7.9	30	4
			d8-toluene (Surrogate)	mg/kg	-	7.3	7.8	30	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.6	30	4
		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
SE236405.027	LB258091.015		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.3	8.3	30	0
			d8-toluene (Surrogate)	mg/kg	-	8.7	8.6	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	9.0	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE236495.005	LB258091.032		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	8.1	30	8
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.2	30	8

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 Soil (continued) — Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236495.005	LB258091.032	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	8.1	30	9
		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 %
SE236405.033	LB257828.021		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	-	9.6	9.9	30	2
			d8-toluene (Surrogate)	µg/L	-	10.2	10.0	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	10.6	10.5	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
SE236421.003	LB257828.022		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	-	9.7	9.9	30	2
			d8-toluene (Surrogate)	µg/L	-	10.0	10.1	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.6	10.7	30	0
		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 %
LB258189.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	100
LB258197.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	94

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258070.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	102
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	107
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	108
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	105
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	104
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	71
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	110
LB258075.002		Heptachlor	mg/kg	0.1	0.1	0.2	60 - 140	70
		Aldrin	mg/kg	0.1	0.1	0.2	60 - 140	66
		Delta BHC	mg/kg	0.1	0.1	0.2	60 - 140	67
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	67
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	81
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	76
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.11	0.15	40 - 130	72

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258070.002		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	76
		Diazinon (Dimpylate)	mg/kg	0.5	2.1	2	60 - 140	105
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	101
		Ethion	mg/kg	0.2	1.8	2	60 - 140	91
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
LB258075.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	83
		Diazinon (Dimpylate)	mg/kg	0.5	2.1	2	60 - 140	103
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	98
		Ethion	mg/kg	0.2	1.7	2	60 - 140	87
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258070.002		Naphthalene	mg/kg	0.1	4.5	4	60 - 140	113
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	108
		Acenaphthene	mg/kg	0.1	4.5	4	60 - 140	113
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	115
		Anthracene	mg/kg	0.1	4.6	4	60 - 140	114
		Fluoranthene	mg/kg	0.1	4.6	4	60 - 140	114
		Pyrene	mg/kg	0.1	4.4	4	60 - 140	111
		Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	105
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
LB258075.002		Naphthalene	mg/kg	0.1	4.6	4	60 - 140	115
		Acenaphthylene	mg/kg	0.1	4.4	4	60 - 140	110
		Acenaphthene	mg/kg	0.1	4.6	4	60 - 140	115
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	114
		Anthracene	mg/kg	0.1	4.5	4	60 - 140	113
		Fluoranthene	mg/kg	0.1	4.5	4	60 - 140	112
		Pyrene	mg/kg	0.1	4.3	4	60 - 140	108
		Benzo(a)pyrene	mg/kg	0.1	4.1	4	60 - 140	103
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	112
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96

PCBs in Soil

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

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.

PCBs in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258070.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	123
LB258075.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	82

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 %
LB258187.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	110
	Cadmium, Cd	mg/kg	0.3	5.2	4.81	70 - 130	109
	Chromium, Cr	mg/kg	0.5	40	38.31	80 - 120	103
	Copper, Cu	mg/kg	0.5	340	290	80 - 120	119
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	105
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	300	273	80 - 120	111
LB258195.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	110
	Cadmium, Cd	mg/kg	0.3	5.1	4.81	70 - 130	106
	Chromium, Cr	mg/kg	0.5	41	38.31	80 - 120	108
	Copper, Cu	mg/kg	0.5	340	290	80 - 120	116
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	105
	Lead, Pb	mg/kg	1	92	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	300	273	80 - 120	111

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB257748.002	Arsenic, As	µg/L	1	19	20	80 - 120	97
	Cadmium, Cd	µg/L	0.1	20	20	80 - 120	100
	Chromium, Cr	µg/L	1	21	20	80 - 120	103
	Copper, Cu	µg/L	1	21	20	80 - 120	106
	Lead, Pb	µg/L	1	21	20	80 - 120	106
	Nickel, Ni	µg/L	1	20	20	80 - 120	102
	Zinc, Zn	µg/L	5	21	20	80 - 120	107

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258070.002		TRH C10-C14	mg/kg	20	46	40	60 - 140	115
		TRH C15-C28	mg/kg	45	49	40	60 - 140	123
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16	mg/kg	25	46	40	60 - 140	115
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	113
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80
LB258075.002		TRH C10-C14	mg/kg	20	50	40	60 - 140	125
		TRH C15-C28	mg/kg	45	49	40	60 - 140	123
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	98
	TRH F Bands	TRH >C10-C16	mg/kg	25	50	40	60 - 140	125
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	115
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258008.002		TRH C10-C14	µg/L	50	1400	1200	60 - 140	115
		TRH C15-C28	µg/L	200	1500	1200	60 - 140	124
		TRH C29-C36	µg/L	200	1400	1200	60 - 140	119
	TRH F Bands	TRH >C10-C16	µg/L	60	1500	1200	60 - 140	126
		TRH >C16-C34 (F3)	µg/L	500	1500	1200	60 - 140	123
		TRH >C34-C40 (F4)	µg/L	500	640	600	60 - 140	107

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258090.002	Monocyclic	Benzene	mg/kg	0.1	4.6	5	60 - 140	92
	Aromatic	Toluene	mg/kg	0.1	4.2	5	60 - 140	85
	Hydrocarbons	Ethylbenzene	mg/kg	0.1	4.6	5	60 - 140	92
		m/p-xylene	mg/kg	0.2	9.0	10	60 - 140	90
		o-xylene	mg/kg	0.1	4.8	5	60 - 140	96
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.9	10	70 - 130	89

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

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

VOC's in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258090.002	Surrogates	d8-toluene (Surrogate)	mg/kg	-	8.8	10	70 - 130	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	10	70 - 130	93
LB258091.002	Monocyclic	Benzene	mg/kg	0.1	4.9	5	60 - 140	98
	Aromatic	Toluene	mg/kg	0.1	4.7	5	60 - 140	95
	Hydrocarbons	Ethylbenzene	mg/kg	0.1	4.8	5	60 - 140	96
		m/p-xylene	mg/kg	0.2	9.3	10	60 - 140	93
		o-xylene	mg/kg	0.1	5.0	5	60 - 140	101
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.4	10	70 - 130	94
		d8-toluene (Surrogate)	mg/kg	-	9.7	10	70 - 130	97
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB257828.002	Monocyclic	Benzene	µg/L	0.5	52	45.45	60 - 140	115
	Aromatic	Toluene	µg/L	0.5	52	45.45	60 - 140	115
	Hydrocarbons	Ethylbenzene	µg/L	0.5	54	45.45	60 - 140	118
		m/p-xylene	µg/L	1	110	90.9	60 - 140	118
		o-xylene	µg/L	0.5	54	45.45	60 - 140	119
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.4	10	60 - 140	104
		d8-toluene (Surrogate)	µg/L	-	10.2	10	70 - 130	102
		Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258090.002		TRH C6-C10	mg/kg	25	77	92.5	60 - 140	83
		TRH C6-C9	mg/kg	20	51	80	60 - 140	64
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.9	10	70 - 130	89
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	10	70 - 130	93
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	49	62.5	60 - 140	79
LB258091.002		TRH C6-C10	mg/kg	25	81	92.5	60 - 140	88
		TRH C6-C9	mg/kg	20	73	80	60 - 140	91
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.4	10	70 - 130	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	53	62.5	60 - 140	84

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB257828.002		TRH C6-C10	µg/L	50	870	946.63	60 - 140	92
		TRH C6-C9	µg/L	40	760	818.71	60 - 140	93
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.4	10	60 - 140	104
		d8-toluene (Surrogate)	µg/L	-	10.2	10	70 - 130	102
		Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	550	639.67	60 - 140	87

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%
SE236372.013	LB257783.004	Mercury	mg/L	0.0001	0.0017	<0.0001	0.008	87

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236405.001	LB258189.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	84
SE236405.020	LB258197.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	83

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236390.001	LB258075.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	92
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	84
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	86
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	95
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	100
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	90
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
			Total OC VIC EPA	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.12	-	83
SE236405.001	LB258070.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	111
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	113
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	116
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	111
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	113
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-

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

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

OC Pesticides in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236405.001	LB258070.004		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	83
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
			Total OC VIC EPA	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.15	-	111

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236390.001	LB258075.004		Dichlorvos	mg/kg	0.5	1.8	<0.5	2	89
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	2.1	<0.5	2	106
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	<0.2	2	101
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.8	<0.2	2	89
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	7.7	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	101
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	90
SE236405.001	LB258070.004		Dichlorvos	mg/kg	0.5	1.5	<0.5	2	75
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	2.1	<0.5	2	104
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	<0.2	2	99
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.8	<0.2	2	92
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	7.4	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	93
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236390.001	LB258075.004	Naphthalene	mg/kg	0.1	4.6	<0.1	4	115
		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	4.5	0.1	4	110
		Acenaphthene	mg/kg	0.1	4.6	<0.1	4	114
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	5.2	0.8	4	108
		Anthracene	mg/kg	0.1	4.7	0.2	4	112
		Fluoranthene	mg/kg	0.1	5.5	1.3	4	103
		Pyrene	mg/kg	0.1	4.8	1.3	4	89
		Benzo(a)anthracene	mg/kg	0.1	0.5	0.6	-	-
		Chrysene	mg/kg	0.1	0.5	0.5	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.6	0.7	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.3	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.6	0.6	4	100
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.4	0.4	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-

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%
SE236390.001	LB258075.004		Benzo(ghi)perylene	mg/kg	0.1	0.4	0.5	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.8	0.8	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.9	0.9	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.8	0.8	-	-
			Total PAH (18)	mg/kg	0.8	41	7.3	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	-	112
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	101
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	90
SE236405.001	LB258070.004		Naphthalene	mg/kg	0.1	4.7	<0.1	4	117
			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	4.4	<0.1	4	111
			Acenaphthene	mg/kg	0.1	4.6	<0.1	4	115
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.6	<0.1	4	115
			Anthracene	mg/kg	0.1	4.6	<0.1	4	116
			Fluoranthene	mg/kg	0.1	4.7	<0.1	4	115
			Pyrene	mg/kg	0.1	4.5	<0.1	4	111
			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	4.2	<0.1	4	104
			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	4.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.4	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.3	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	36	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	105
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	93
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	96

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236390.001	LB258075.004		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	99
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	83
SE236405.001	LB258070.004		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.5	<0.2	0.4	127
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	111

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

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

QC Sample	Sample Number	Parameter	Units	LOR

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.

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236405.001	LB258187.004	Arsenic, As	mg/kg	1	62	13	50	98
		Cadmium, Cd	mg/kg	0.3	53	<0.3	50	106
		Chromium, Cr	mg/kg	0.5	68	14	50	108
		Copper, Cu	mg/kg	0.5	90	29	50	121
		Nickel, Ni	mg/kg	0.5	65	8.7	50	113
		Lead, Pb	mg/kg	1	69	29	50	81
		Zinc, Zn	mg/kg	2	110	57	50	113
SE236405.020	LB258195.004	Arsenic, As	mg/kg	1	62	6	50	112
		Cadmium, Cd	mg/kg	0.3	54	<0.3	50	107
		Chromium, Cr	mg/kg	0.5	67	9.2	50	116
		Copper, Cu	mg/kg	0.5	78	21	50	113
		Nickel, Ni	mg/kg	0.5	60	5.2	50	110
		Lead, Pb	mg/kg	1	82	32	50	101
		Zinc, Zn	mg/kg	2	100	45	50	116

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236280.043	LB257748.004	Arsenic, As	µg/L	1	20	<1	20	99
		Cadmium, Cd	µg/L	0.1	20	<0.1	20	100
		Chromium, Cr	µg/L	1	21	<1	20	102
		Copper, Cu	µg/L	1	21	<1	20	103
		Lead, Pb	µg/L	1	21	<1	20	107
		Nickel, Ni	µg/L	1	21	<1	20	104
		Zinc, Zn	µg/L	5	23	<5	20	108

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236390.001	LB258075.004		TRH C10-C14	mg/kg	20	47	<20	40	118
			TRH C15-C28	mg/kg	45	110	70	40	110
			TRH C29-C36	mg/kg	45	85	52	40	83
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	250	120	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	47	<25	40	118
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	47	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	150	120	40	95
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
SE236405.001	LB258070.004		TRH C10-C14	mg/kg	20	44	<20	40	110
			TRH C15-C28	mg/kg	45	45	<45	40	113
			TRH C29-C36	mg/kg	45	<45	<45	40	85
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	44	<25	40	110
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	44	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	105
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236390.001	LB258091.004	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	4.7	<0.1	5	94
			Toluene	mg/kg	0.1	4.4	<0.1	5	89
			Ethylbenzene	mg/kg	0.1	4.3	<0.1	5	86
			m/p-xylene	mg/kg	0.2	8.6	<0.2	10	85
			o-xylene	mg/kg	0.1	4.7	<0.1	5	94
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	9.3	10	90
			d8-toluene (Surrogate)	mg/kg	-	9.4	9.6	10	94
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	9.4	10	93
		Totals	Total Xylenes	mg/kg	0.3	13	<0.3	-	-
			Total BTEX	mg/kg	0.6	27	<0.6	-	-
SE236405.001	LB258090.004	Monocyclic	Benzene	mg/kg	0.1	4.5	<0.1	5	90

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

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

VOC's in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236405.001	LB258090.004	Monocyclic	Toluene	mg/kg	0.1	4.4	<0.1	5	88
		Aromatic	Ethylbenzene	mg/kg	0.1	4.4	<0.1	5	88
		Hydrocarbons	m/p-xylene	mg/kg	0.2	8.5	<0.2	10	84
			o-xylene	mg/kg	0.1	4.6	<0.1	5	91
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.9	8.1	10	79
			d8-toluene (Surrogate)	mg/kg	-	8.0	8.1	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.2	9.2	10	82
		Totals	Total Xylenes	mg/kg	0.3	13	<0.3	-	-
			Total BTEX	mg/kg	0.6	26	<0.6	-	-

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236382.036	LB257828.023	Monocyclic	Benzene	µg/L	0.5	53	<0.5	45.45	116
		Aromatic	Toluene	µg/L	0.5	52	<0.5	45.45	115
		Hydrocarbons	Ethylbenzene	µg/L	0.5	54	<0.5	45.45	119
			m/p-xylene	µg/L	1	110	<1	90.9	117
			o-xylene	µg/L	0.5	55	<0.5	45.45	120
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	62	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.6	9.8	-	106
			d8-toluene (Surrogate)	µg/L	-	10.3	10.3	-	103
			Bromofluorobenzene (Surrogate)	µg/L	-	11.2	10.6	-	112

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236390.001	LB258091.005		TRH C6-C10	mg/kg	25	75	<25	92.5	80
			TRH C6-C9	mg/kg	20	65	<20	80	81
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	9.3	10	90
			d8-toluene (Surrogate)	mg/kg	-	9.4	9.6	10	94
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	9.4	-	93
		VPH F	Benzene (F0)	mg/kg	0.1	4.7	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	48	<25	62.5	76
SE236405.001	LB258090.004		TRH C6-C10	mg/kg	25	74	<25	92.5	80
			TRH C6-C9	mg/kg	20	70	<20	80	86
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.9	8.1	10	79
			d8-toluene (Surrogate)	mg/kg	-	8.0	8.1	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.2	9.2	-	82
		VPH F	Benzene (F0)	mg/kg	0.1	4.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	48	<25	62.5	76

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236382.036	LB257828.023		TRH C6-C10	µg/L	50	880	<50	946.63	93
			TRH C6-C9	µg/L	40	770	<40	818.71	93
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.6	9.8	-	106
			d8-toluene (Surrogate)	µg/L	-	10.3	10.3	-	103
			Bromofluorobenzene (Surrogate)	µg/L	-	11.2	10.6	-	112
		VPH F	Benzene (F0)	µg/L	0.5		<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	560	<50	639.67	87

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

QC Sample	Sample Number	Parameter	Units	LOR

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE236405A R0

CLIENT DETAILS

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Project	**E25358 160 Lord Sheffield Circuit, Penri**
Order Number	**E25358**
Samples	35

LABORATORY DETAILS

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SGS Reference	**SE236405A R0**
Date Received	16 Sep 2022
Date Reported	20 Sep 2022

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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	1 Soil
Date documentation received	16/9/2022@2:36pm	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two Days		

HOLDING TIME SUMMARY

SE236405A R0

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract — Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH108_0.4-0.5	SE236405A.011	LB258628	06 Sep 2022	16 Sep 2022	27 Sep 2022	19 Sep 2022	29 Oct 2022	20 Sep 2022

TCLP (Toxicity Characteristic Leaching Procedure) for Organics/SVOC — Method: ME-(AU)-[ENV]AN006

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH108_0.4-0.5	SE236405A.011	LB258695	06 Sep 2022	16 Sep 2022	20 Sep 2022	19 Sep 2022	20 Sep 2022	20 Sep 2022

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 TCLP Extract — **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH108_0.4-0.5	SE236405A.011	%	40 - 130%	82
d14-p-terphenyl (Surrogate)	BH108_0.4-0.5	SE236405A.011	%	40 - 130%	100
d5-nitrobenzene (Surrogate)	BH108_0.4-0.5	SE236405A.011	%	40 - 130%	78

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 TCLP Extract — **Method: ME-(AU)-[ENV]AN420**

Sample Number		Parameter	Units	LOR	Result
LB258628.001		Benzo(a)pyrene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	64
		2-fluorobiphenyl (Surrogate)	%	-	78
		d14-p-terphenyl (Surrogate)	%	-	94

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 TCLP Extract — **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE236806.009	LB258628.027		Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.4	30	28
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.4	30	20
			d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	30	14

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract — Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB258628.002		Benzo(a)pyrene	µg/L	0.1	37	40	60 - 140	93
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	56
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	88

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.

QC Sample	Sample Number	Parameter	Units	LOR

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.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE237004 R0

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Order Number	**E25358**
Samples	8

LABORATORY DETAILS

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SGS Reference	**SE237004 R0**
Date Received	21 Sep 2022
Date Reported	29 Sep 2022

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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	8 Water
Date documentation received	23/9/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	16.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE237004 R0

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

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

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

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M	SE237004.001	LB259265	21 Sep 2022	21 Sep 2022	19 Oct 2022	27 Sep 2022	19 Oct 2022	29 Sep 2022
GW-BH102M	SE237004.002	LB259265	21 Sep 2022	21 Sep 2022	19 Oct 2022	27 Sep 2022	19 Oct 2022	29 Sep 2022
GW-BH103M	SE237004.003	LB259265	21 Sep 2022	21 Sep 2022	19 Oct 2022	27 Sep 2022	19 Oct 2022	29 Sep 2022
GW-BH104M	SE237004.004	LB259265	21 Sep 2022	21 Sep 2022	19 Oct 2022	27 Sep 2022	19 Oct 2022	29 Sep 2022
GW-QD1	SE237004.005	LB259265	21 Sep 2022	21 Sep 2022	19 Oct 2022	27 Sep 2022	19 Oct 2022	29 Sep 2022
GW-QR1	SE237004.006	LB259265	21 Sep 2022	21 Sep 2022	19 Oct 2022	27 Sep 2022	19 Oct 2022	29 Sep 2022

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
GW-BH101M	SE237004.001	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	28 Sep 2022
GW-BH102M	SE237004.002	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	28 Sep 2022
GW-BH103M	SE237004.003	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	28 Sep 2022
GW-BH104M	SE237004.004	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	28 Sep 2022
GW-QD1	SE237004.005	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	28 Sep 2022
GW-QR1	SE237004.006	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	28 Sep 2022

Total Phenolics in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M	SE237004.001	LB259499	21 Sep 2022	21 Sep 2022	05 Oct 2022	29 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH102M	SE237004.002	LB259499	21 Sep 2022	21 Sep 2022	05 Oct 2022	29 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH103M	SE237004.003	LB259499	21 Sep 2022	21 Sep 2022	05 Oct 2022	29 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH104M	SE237004.004	LB259499	21 Sep 2022	21 Sep 2022	05 Oct 2022	29 Sep 2022	05 Oct 2022	29 Sep 2022

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
GW-BH101M	SE237004.001	LB259122	21 Sep 2022	21 Sep 2022	20 Mar 2023	26 Sep 2022	20 Mar 2023	26 Sep 2022
GW-BH102M	SE237004.002	LB259122	21 Sep 2022	21 Sep 2022	20 Mar 2023	26 Sep 2022	20 Mar 2023	26 Sep 2022
GW-BH103M	SE237004.003	LB259122	21 Sep 2022	21 Sep 2022	20 Mar 2023	26 Sep 2022	20 Mar 2023	26 Sep 2022
GW-BH104M	SE237004.004	LB259122	21 Sep 2022	21 Sep 2022	20 Mar 2023	26 Sep 2022	20 Mar 2023	26 Sep 2022
GW-QD1	SE237004.005	LB259122	21 Sep 2022	21 Sep 2022	20 Mar 2023	26 Sep 2022	20 Mar 2023	26 Sep 2022
GW-QR1	SE237004.006	LB259122	21 Sep 2022	21 Sep 2022	20 Mar 2023	26 Sep 2022	20 Mar 2023	26 Sep 2022

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
GW-BH101M	SE237004.001	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	29 Sep 2022
GW-BH102M	SE237004.002	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	29 Sep 2022
GW-BH103M	SE237004.003	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	29 Sep 2022
GW-BH104M	SE237004.004	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	29 Sep 2022
GW-QD1	SE237004.005	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	29 Sep 2022
GW-QR1	SE237004.006	LB259386	21 Sep 2022	21 Sep 2022	28 Sep 2022	28 Sep 2022	07 Nov 2022	29 Sep 2022

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M	SE237004.001	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH102M	SE237004.002	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH103M	SE237004.003	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH104M	SE237004.004	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-QD1	SE237004.005	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-QR1	SE237004.006	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
TS	SE237004.007	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
TB	SE237004.008	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M	SE237004.001	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH102M	SE237004.002	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH103M	SE237004.003	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-BH104M	SE237004.004	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-QD1	SE237004.005	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
GW-QR1	SE237004.006	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
TS	SE237004.007	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022
TB	SE237004.008	LB259400	21 Sep 2022	21 Sep 2022	05 Oct 2022	28 Sep 2022	05 Oct 2022	29 Sep 2022

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)	GW-BH101M	SE237004.001	%	40 - 130%	54
	GW-BH102M	SE237004.002	%	40 - 130%	66
	GW-BH103M	SE237004.003	%	40 - 130%	60
	GW-BH104M	SE237004.004	%	40 - 130%	68
d14-p-terphenyl (Surrogate)	GW-BH101M	SE237004.001	%	40 - 130%	66
	GW-BH102M	SE237004.002	%	40 - 130%	70
	GW-BH103M	SE237004.003	%	40 - 130%	68
	GW-BH104M	SE237004.004	%	40 - 130%	76
d5-nitrobenzene (Surrogate)	GW-BH101M	SE237004.001	%	40 - 130%	50
	GW-BH102M	SE237004.002	%	40 - 130%	62
	GW-BH103M	SE237004.003	%	40 - 130%	56
	GW-BH104M	SE237004.004	%	40 - 130%	64

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW-BH101M	SE237004.001	%	40 - 130%	108
	GW-BH102M	SE237004.002	%	40 - 130%	105
	GW-BH103M	SE237004.003	%	40 - 130%	109
	GW-BH104M	SE237004.004	%	40 - 130%	108
	GW-QD1	SE237004.005	%	40 - 130%	109
	GW-QR1	SE237004.006	%	40 - 130%	108
	TS	SE237004.007	%	40 - 130%	104
	TB	SE237004.008	%	40 - 130%	105
d4-1,2-dichloroethane (Surrogate)	GW-BH101M	SE237004.001	%	40 - 130%	96
	GW-BH102M	SE237004.002	%	40 - 130%	92
	GW-BH103M	SE237004.003	%	40 - 130%	92
	GW-BH104M	SE237004.004	%	40 - 130%	88
	GW-QD1	SE237004.005	%	40 - 130%	88
	GW-QR1	SE237004.006	%	40 - 130%	90
	TS	SE237004.007	%	40 - 130%	96
	TB	SE237004.008	%	40 - 130%	92
d8-toluene (Surrogate)	GW-BH101M	SE237004.001	%	40 - 130%	92
	GW-BH102M	SE237004.002	%	40 - 130%	92
	GW-BH103M	SE237004.003	%	40 - 130%	91
	GW-BH104M	SE237004.004	%	40 - 130%	90
	GW-QD1	SE237004.005	%	40 - 130%	92
	GW-QR1	SE237004.006	%	40 - 130%	90
	TS	SE237004.007	%	40 - 130%	96
	TB	SE237004.008	%	40 - 130%	94

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW-BH101M	SE237004.001	%	40 - 130%	108
	GW-BH102M	SE237004.002	%	40 - 130%	105
	GW-BH103M	SE237004.003	%	40 - 130%	109
	GW-BH104M	SE237004.004	%	40 - 130%	108
	GW-QD1	SE237004.005	%	40 - 130%	109
	GW-QR1	SE237004.006	%	40 - 130%	108
d4-1,2-dichloroethane (Surrogate)	GW-BH101M	SE237004.001	%	60 - 130%	96
	GW-BH102M	SE237004.002	%	60 - 130%	92
	GW-BH103M	SE237004.003	%	60 - 130%	92
	GW-BH104M	SE237004.004	%	60 - 130%	88
	GW-QD1	SE237004.005	%	60 - 130%	88
	GW-QR1	SE237004.006	%	60 - 130%	90
d8-toluene (Surrogate)	GW-BH101M	SE237004.001	%	40 - 130%	92
	GW-BH102M	SE237004.002	%	40 - 130%	92
	GW-BH103M	SE237004.003	%	40 - 130%	91
	GW-BH104M	SE237004.004	%	40 - 130%	90
	GW-QD1	SE237004.005	%	40 - 130%	92
	GW-QR1	SE237004.006	%	40 - 130%	90

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

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

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB259265.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB259386.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	76
		2-fluorobiphenyl (Surrogate)	%	-	74
		d14-p-terphenyl (Surrogate)	%	-	80

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result
LB259499.001	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
LB259122.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5
LB259122.025	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB259386.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB259400.001	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

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
LB259400.001	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
		Iodomethane	µg/L	5	<5
		1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<2
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene (VOC)	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
LB259400.001	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	101
		d8-toluene (Surrogate)	%	-	104
		Bromofluorobenzene (Surrogate)	%	-	114
	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
LB259400.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	101
		d8-toluene (Surrogate)	%	-	104
		Bromofluorobenzene (Surrogate)	%	-	114

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 %
SE237095.004	LB259265.013	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	195

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE237004.004	LB259386.028		Naphthalene	µg/L	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthene	µg/L	0.1	<0.1	<0.1	200	0
			Fluorene	µg/L	0.1	<0.1	<0.1	200	0
			Phenanthrene	µg/L	0.1	<0.1	<0.1	200	0
			Anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Chrysene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.4	30	9
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.4	30	11
			d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.4	30	5

Total Phenolics in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE237138.001	LB259499.012	Total Phenols	mg/L	0.05	<0.05	<0.05	200	0

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE237002.003	LB259122.014	Arsenic, As	µg/L	1	4	4	42	4
		Cadmium, Cd	µg/L	0.1	1.9	1.9	20	2
		Chromium, Cr	µg/L	1	35	34	18	2
		Copper, Cu	µg/L	1	40	40	17	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	70	68	16	2
		Zinc, Zn	µg/L	5	460	450	16	2
SE237041.002	LB259122.028	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	1	2	80	6
		Copper, Cu	µg/L	1	2	3	56	9
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	6	7	30	8
		Zinc, Zn	µg/L	5	18	18	43	2
SE237041.006	LB259122.033	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	1	1	109	3
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Water

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

Original	Duplicate	Parameter	Units	LOR

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

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

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

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

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

TRH (Total Recoverable Hydrocarbons) in Water (continued) **Method: ME-(AU)-[ENV]AN403**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE237004.004	LB259386.028		TRH C10-C14	µg/L	50	<50	<50	200	0
			TRH C15-C28	µg/L	200	<200	<200	200	0
			TRH C29-C36	µg/L	200	<200	<200	200	0
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	<320	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0
SE237059.001	LB259386.029		TRH C10-C14	µg/L	50	21000	20000	30	3
			TRH C15-C28	µg/L	200	2700	3400	37	25
			TRH C29-C36	µg/L	200	4200	5400	34	26
			TRH C37-C40	µg/L	200	1200	1700	44	36
			TRH C10-C40	µg/L	320	29000	31000	31	6
		TRH F Bands	TRH >C10-C16	µg/L	60	21000	20000	30	3
			TRH >C16-C34 (F3)	µg/L	500	5400	6800	38	23
			TRH >C34-C40 (F4)	µg/L	500	2600	3600	46	33

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB259386.002		Naphthalene	µg/L	0.1	33	40	60 - 140	83
		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	34	40	60 - 140	86
		Anthracene	µg/L	0.1	33	40	60 - 140	84
		Fluoranthene	µg/L	0.1	34	40	60 - 140	84
		Pyrene	µg/L	0.1	34	40	60 - 140	84
		Benzo(a)pyrene	µg/L	0.1	33	40	60 - 140	81
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	66
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	70
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	82

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB259499.002	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 %
LB259122.002	Arsenic, As	µg/L	1	21	20	80 - 120	103
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	104
	Chromium, Cr	µg/L	1	20	20	80 - 120	101
	Copper, Cu	µg/L	1	20	20	80 - 120	102
	Lead, Pb	µg/L	1	22	20	80 - 120	110
	Nickel, Ni	µg/L	1	20	20	80 - 120	102
	Zinc, Zn	µg/L	5	21	20	80 - 120	107
LB259122.026	Arsenic, As	µg/L	1	23	20	80 - 120	113
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	107
	Chromium, Cr	µg/L	1	20	20	80 - 120	102
	Copper, Cu	µg/L	1	20	20	80 - 120	98
	Lead, Pb	µg/L	1	22	20	80 - 120	110
	Nickel, Ni	µg/L	1	20	20	80 - 120	100
	Zinc, Zn	µg/L	5	21	20	80 - 120	103

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB259386.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	103
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	119
		TRH C29-C36	µg/L	200	1300	1200	60 - 140	110
	TRH F Bands	TRH >C10-C16	µg/L	60	1400	1200	60 - 140	113
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	117
		TRH >C34-C40 (F4)	µg/L	500	630	600	60 - 140	106

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB259400.002	Halogenated Aliphatics	1,1-dichloroethene	µg/L	0.5	44	45.45	60 - 140	97
		1,2-dichloroethane	µg/L	0.5	49	45.45	60 - 140	107
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	42	45.45	60 - 140	93
	Halogenated Monocyclic Aromatic Hydrocarbons	Chlorobenzene	µg/L	0.5	50	45.45	60 - 140	111
		Benzene	µg/L	0.5	47	45.45	60 - 140	104
		Toluene	µg/L	0.5	49	45.45	60 - 140	107
		Ethylbenzene	µg/L	0.5	43	45.45	60 - 140	95
		m/p-xylene	µg/L	1	88	90.9	60 - 140	97
		o-xylene	µg/L	0.5	47	45.45	60 - 140	105
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.8	10	60 - 140	88
		d8-toluene (Surrogate)	µg/L	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	µg/L	-	10.3	10	70 - 130	103
	Trihalomethan	Chloroform (THM)	µg/L	0.5	55	45.45	60 - 140	120

Volatile Petroleum Hydrocarbons 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.

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB259400.002		TRH C6-C10	µg/L	50	660	946.63	60 - 140	70
		TRH C6-C9	µg/L	40	550	818.71	60 - 140	67
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.8	10	60 - 140	88
		d8-toluene (Surrogate)	µg/L	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	µg/L	-	10.3	10	70 - 130	103
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	390	639.67	60 - 140	61

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%
SE237004.001	LB259265.004	Mercury	mg/L	0.0001	0.0017	<0.0001	0.008	83

Total Phenolics in Water — Method: ME-(AU)-[ENV]AN295

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE237200.001	LB259499.004	Total Phenols	mg/L	0.05	0.19	<0.05	0.2	95

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE236927.031	LB259122.004	Arsenic, As	µg/L	1	22	-0.00265675	20	109
		Cadmium, Cd	µg/L	0.1	22	-0.00257274	20	108
		Chromium, Cr	µg/L	1	21	0.0804491	20	105
		Copper, Cu	µg/L	1	21	0.0755118	20	106
		Lead, Pb	µg/L	1	23	-0.01409527	20	114
		Nickel, Ni	µg/L	1	21	0.04057323	20	107
		Zinc, Zn	µg/L	5	24	1.07713784	20	113
SE237041.004	LB259122.030	Arsenic, As	µg/L	1	25	<1	20	122
		Cadmium, Cd	µg/L	0.1	22	<0.1	20	109
		Chromium, Cr	µg/L	1	21	<1	20	101
		Copper, Cu	µg/L	1	25	6	20	96
		Lead, Pb	µg/L	1	23	<1	20	111
		Nickel, Ni	µg/L	1	25	5	20	98
		Zinc, Zn	µg/L	5	56	35	20	107

MATRIX SPIKE DUPLICATES

SE237004 R0

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.

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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