

Detailed Site Investigation

Block 4 Section 109, Amaroo

Prepared for

Stantec Australia

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Executive Summary

Stantec Australia (Stantec) engaged Lanterra Consulting Pty Ltd (Lanterra) to complete a detailed environmental site investigation for part of Block 4 Section 109, Amaroo, ACT 2914

The site is located in the northern section of Block 4 Section 109 which is zoned PRZ1: Urban Open Space. While Block 4 Section 109 has an area of 310,006 square metres (m²) under the Territory Plan, the site which is the subject of this investigation, has an area of approximately 13,500 m².

The site is predominantly undeveloped parkland although a network of sealed foot / bike paths are present across its central and southern portion. Sporting fields and associated infrastructure including a club house and sealed carpark are observed to the south of the site. Ginninderra Creek and an associated tributary are used for stormwater control while a retention pond is located to the northwest of the site.

The scope of work for the investigation was:

- Advancement of fifteen (15) test pits across the site.
- Samples were collected from test pits to a target depth of 2 m below ground level (bgl).
- Quality Assurance / Quality Control (QA/QC) samples were collected in accordance with Australian Standard AS4482.1-2005.
- Fifteen (15) primary soil samples and three (3) QA/QC samples were submitted to a National Association of Testing Authorities (NATA) accredited laboratory to assess for the following contaminants of potential concern (COPCs) based on the history on-site:
 - Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
 - Total recoverable hydrocarbons (TRH);
 - Benzene, toluene, ethylbenzene xylenes (BTEX);
 - Polycyclic aromatic hydrocarbons (PAH);
 - Organochlorine and organochlorine pesticides (OCP/OPP);
 - Polychlorinated biphenyls (PCB);
 - Phenols
 - 8 Heavy Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc).
 - Asbestos.
- Preparation of this detailed site investigation report that assesses the suitability of the site for the land uses permitted under the PRZ1: Urban Open Space zone.

The results of this investigation can be summarised as follows:

- Topsoil was encountered to a depth of approximately 0.4 m across the site.
- Fill material was observed beneath the topsoil at locations Pit 104, Pit 105, Pit 106 and Pit 109 which ranged in thickness from 0.6 m to 2.1 m.
- Natural material was observed beneath the topsoil or fill where it was encountered.
- Water infiltrated five (5) test pits at a depth of approximately 2 m bgl in the
- Concentrations of COPCs were below the adopted HIL/HSL C and EIL/ESL criteria.

In summary, no indications of contamination that may compromise the suitability of the site for the proposed tennis club were identified.

Therefore, based on the findings of this contamination assessment, the site is considered suitable for land uses permitted under PRZ1: Urban Open Space.

While the site is considered suitable for the proposed tennis centre, the following recommendations are made:

- Prior to any earthworks, an unexpected finds protocol (UFP) to manage any unexpected occurrences of contamination must be prepared by a suitably qualified environmental consultant.
- Due to the presence of fill that has been imported onto the site, soil that requires removal from the site must be assessed in accordance with the ACT EPA *'Information Sheet 4 – Requirements for the Reuse and Disposal of Contaminated Soil in the ACT'*.

1. Introduction

Stantec Australia (Stantec) engaged Lanterra Consulting Pty Ltd (Lanterra) to complete a detailed environmental site investigation for part of Block 4 Section 109, Amaroo, ACT 2914 (herein referred to as the Site). The location and layout of the site is illustrated in **Figure 1** and **Figure 2, Appendix A**.

The site is located in the northern section of Block 4 Section 109 which is zoned PRZ1: Urban Open Space. While Block 4 Section 109 has an area of 310,006 square metres (m²) under the Territory Plan, the site which is the subject of this investigation, has an area of approximately 13,500 m².

The site is predominantly undeveloped parkland although a network of sealed foot / bike paths are present across its central and southern portion. Sporting fields and associated infrastructure including a club house and sealed carpark are observed to the south of the site. Waterbodies in the form of creeks / drainage channels and stormwater retention ponds are also observed across Block 4 Section 109.

Based on the project brief, the site is the proposed location for the development of a new tennis complex, comprising tennis courts, car parking, lighting towers and a pavilion.

A preliminary site investigation (PSI) was completed by Lanterra in June 2022 titled '*Preliminary Site Investigation, Part of Block 4, Section 109, Amaroo, ACT 2914*' (reference P22059_PSI_20220617 dated 17 June 2022), which concluded that further environmental investigations including soil sampling was recommended to examine the contamination risks identified across the site (**Section 3**).

This DSI addresses the recommendation for soil investigation across the site.

1.1 Objectives

The objective of this investigation was to assess the suitability of the site for the land uses permitted under the PRZ1: Urban Open Space and adequately characterise the condition of the site including soil sampling from a contamination perspective.

1.2 Scope of Work

The scope of work for the investigation was as follows:

- Mobilise a suitably qualified environmental consultant to collect soil samples from across the investigation area.
- Fifteen (15) sample locations were be selected across the site.
- Samples were collected in conjunction with the geotechnical investigation conducted by Douglas Partners. Samples were collected from test pits to a target depth of 2 m below ground level (bgl) or 0.5 m into the natural soil unless refusal is encountered prior to the target depth.
- Each soil sample was logged in general accordance with the Unified Soil Classification System (USCS).
- Each sample was field screened with a photoionisation detector (PID).
- Soil samples were collected from the surface, 0.5 m bgl, 1.0 m bgl and then each metre thereafter, at changes of lithology or from lenses of gross contamination.
- In accordance with Australian Standard AS4482.1-2005, the following quality assurance and quality control (QA/QC) samples would be collected:
 - One (1) field duplicate sample to assess the precision of the primary laboratory.

- One (1) field triplicate sample would be submitted to a secondary laboratory to assess the accuracy of the primary laboratory.
- Fifteen (15) primary soil samples (1 samples per hole) and three (3) Quality Assurance/Quality Control (QA/QC) samples were submitted to a National Association of Testing Authorities (NATA) accredited laboratory to assess for the following contaminants of potential concern based on the history on-site:
 - Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
 - Total recoverable hydrocarbons (TRH);
 - Benzene, toluene, ethylbenzene xylenes (BTEX);
 - Polycyclic aromatic hydrocarbons (PAH);
 - Organochlorine and organochlorine pesticides (OCP/OPP);
 - Polychlorinated biphenyls (PCB);
 - Phenols
 - 8 Heavy Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc).
 - Asbestos.
- Preparation of this detailed site investigation report that assesses the suitability of the site for the land uses permitted under the PRZ1: Urban Open Space zone.

1.3 Regulatory Guidelines / Legislations

The investigation and preparation of this report was undertaken with reference to (but not limited to) the following regulatory guidance documents and standards:

- *ACT Government (2022) Information Sheet 4 - Requirements for the Reuse and Disposal of Contaminated Soil in the ACT;*
- *ACT Government (2020) Information Sheet 11 – Environment Protection Authority Report Submission Requirements;*
- *ACT Government (2000) Environmental Standards: Assessment and Classification of Liquid and Non- Liquid Wastes;*
- *ACT EPA (2017) Contaminated Sites Environment Protection Policy;*
- *ACT EPA (2007) General Environment Protection Policy;*
- *ACT EPA (2021) Environmental Standards: Assessment & Classification of Liquid & Non-liquid Wastes;*
- *National Environmental Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended April 2013) (hereafter ASC NEPM 2013);*
- *NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Ed.) (2017);*
- *NSW EPA (2022) ‘Sampling Design Part 1 – Application’;*
- *NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites; and*
- *Standards Australia (2005). Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds AS4482.1 (2005) and Part 2: Volatile substances, AS4482.2 (2005).*

A DSI report checklist has been prepared in accordance with the NSW EPA *Contaminated Land Guidelines - Consultants Reporting on Contaminated Land*, May 2020 is attached in **Appendix H**.

1.4 Limitations

The findings of the report are based on the Scope of Work outlined above. Lanterra has performed services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties express or implied, are made.

The assessment was limited strictly to identifying typical environmental conditions associated with the subject property area and does not include evaluation of any other issues.

The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the site.

The results of this assessment are based upon the site inspection specified above conducted by Lanterra personnel and information from the Client or regulatory agencies. All conclusions and recommendations regarding the property area will be the professional opinions of the Lanterra personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability are made, Lanterra will not assume responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Lanterra, or developments resulting from situations outside the scope of this project.

2. Site Characteristics

2.1 Site Location and Description

The site location and a detailed site plan are presented in **Figure 1** and **Figure 2, Appendix A**.

Table 1 – Summary of Site Details

Site Characteristics	Detail
Street Address	Horse Park Drive, Amaroo, ACT 2914
Approximate Easting and Northing (centre of site)	Easting: 693610.4 Northing: 6107141.8 GDA2020 / MGA zone 55
Approximate Elevation (m AHD)	627 – 628
Block, Section, Division	Block 4, Section 109, Amaroo
Land Zoning	PRZ1: Urban Open Space FUA: Future Urban Areas (overlay)
Current Land Use	Amaroo District Playing Fields/Ginninderra Creek precinct: undeveloped parkland
Proposed Use	New tennis complex
Block Area	310,006 m ²
Site Area	Approximately 13,500 m ²

The following description is based on observations made during sampling conducted on 23 April 2023.

The site comprised undeveloped parkland, located in the northern section of the Amaroo District Playing Fields and Ginninderra Creek precinct (Block 4, Section 109). To the south of the site was a unnamed creek (tributary of Ginninderra Creek), with the Bicentennial Walking Track and Amaroo District Playing Fields beyond. A stormwater retention pond, Ginninderra Creek and a stormwater outlet / channel are present directly to the north, with Bernard Heinze Avenue beyond. Ginninderra Creek was located adjacent to the west with Jorgensen Street and the residential suburb of Moncrieff beyond.

The investigation area was covered with tussock grasses and the occasional small trees, allowing only limited visibility of the ground surfaces.

No formal access roads or paths to the site were apparent.

A post and wire fence running in a north to south orientation was within the central portion of the site.

The topography of the site was generally uniform, with the exception of a lower 'channel' of approximately 4 m width running adjacent to the fence which appeared to be approximately 0.5 m lower than the surrounding site.

Photographs of the site are presented in **Appendix G**.

2.2 Surrounding Land Uses

A summary of the land uses that surround the site are as follows:

- **North:** Further area comprising Block 4, Section 109, including a stormwater retention pond, Ginninderra Creek and a stormwater outlet/channel are present directly to the north, with Bernard Heinze Avenue beyond.
- **South:** Further area comprising Block 4, Section 109, including an unnamed creek/drainage channel adjacent to the south and the Bicentennial Walking Track and Amaroo District Playing Fields beyond.
- **East:** Horse Park Drive is located to the east of the site, which is situated approximately 3 m higher than the site, the residential suburb of Jacka is beyond.
- **West:** Ginninderra Creek and further parkland located within Block 3, Section 81 was located adjacent to the west with Jorgensen Street and the residential suburb of Moncrieff beyond.

2.3 Sensitive Environments

Sensitive environments located within a 500 m radius of the site included low density residential properties north, east and west of the site. Ginninderra Creek and unnamed creek and stormwater outlet/channels present to the west, north and south respectively, while Amaroo District Playing Fields and the Amaroo Neighbourhood Oval are located to the south. Two schools are located beyond the playing fields to the south.

2.4 Permitted and Proposed Land Uses

Block 4 Section 109 Amaroo is zoned PRZ1: Urban Open Space under the Territory Plan. Based on this zoning the land uses presented in Table 2 below are permitted on the site.

Table 2 – Land Uses Permitted Under the PRZ1: Urban Open Space Zone

Permitted Land Uses	
Ancillary Use	Minor use
Aquatic recreation facility	Municipal depot
Communications facility	Outdoor recreation facility
Community Activity Centre	Parkland
Consolidation	Playing Field
Demolition	Sign
Development in a location and of a type identified in a precinct map as additional merit track development	Subdivision
Major road	Temporary use
Major utility installation	Varying a lease (where not prohibited, code track or impact assessable)
Minor Road	

The site is the proposed location of a new tennis complex which will include tennis courts, car parking, lighting towers and a pavilion which is considered to be a permissible based on the outdoor recreation land use.

It is noted that no sensitive land uses such as residential or community use are permitted on the site.

3. Site History

To assess if the site has been impacted by site activity since previous investigations, Lanterra reviewed the previous investigation reports relevant to the site, as well as historical aerial photographs of the area. These are summarized below.

3.1 Previous Investigations

Following investigations were made available to Lanterra for review:

- Cardno (ACT/NSW) Pty Ltd (2018) '*Geotechnical Investigation, Amaroo Tennis Courts*' (reference 50518098 Geotechnical Investigation_v01 dated 7 October 2018).
- Lanterra Consulting Pty Ltd (2022) '*Preliminary Site Investigation, Part Block 4, Section 109, Amaroo, ACT 2914*' (reference P22059_PSI_20220517, dated 17 June 2022).

A summary of these reports is presented below.

3.1.1 *Cardno Geotechnical Investigation, 2018*

The geotechnical investigation was conducted for the northern portion of Block 4, Section 109 Amaroo by Cardno during October 2018 for the proposed tennis complex development.

The investigation included the excavation of eight (8) test pits in the eastern and western portions of the site where the depths of test pits ranged from 1.9 to 2.2 m bgl.

Findings of the investigation that are relevant to the contamination status of the site are outlined below:

- Groundwater was encountered within test pits across the site, ranging from 1.4 to 2.1 m bgl (626.1 to 624.4 mAHD).
- The subsurface profile encountered was generally consistent across the area of investigation and included topsoil of dark brown/grey silty sands and sandy clays, followed by light brown mottled grey clayey silt, silty clay and grey gravelly clay.
- No evidence of fill materials was identified within the constructed test pits.

3.1.2 *Lanterra Consulting - Preliminary Site Investigation, June 2022*

Cardno engaged Lanterra to complete a PSI for part of Block 4 Section 109, Amaroo, ACT 2914 which is the location of the Amaroo District Playing Fields and associated surrounding parklands (herein referred to as the site). The purpose of the investigation was to assess the site for activities that may introduce the risk of contamination that may affect the proposed use of the site.

The scope of this PSI comprised of the following:

- Review of any previous environmental investigations across the site.
- Acquisition and review of desktop documentation and associated historical information to assess whether there are any known contaminating activities either on the site or on neighbouring properties.
- A review of the environmental setting with regards to geology, topography, hydrology and hydrogeology.
- Perform a site visit to characterise the layout of the site, including inspection of the site surface for obvious and visible signs of potential contamination and / or contaminant sources.
- A visual evaluation of surrounding land uses to identify any neighbouring activities which may have affected or present a potential risk to the environmental quality of the site.

- Based on the results of the PSI one (1) area of environmental concern was identified. This was located in the central portion as well as the northern and eastern boundaries of the site where storage areas for soil materials and other unknown objects were established during the development of the surrounding residential areas and roads.

Based on the results of the PSI, soil sampling was recommended to assess whether the soil storage activities may have introduced contaminants of concern to the site and whether it would be suitable for the land uses permitted under the zoned PRZ1: Urban Open Space Zone from a contamination perspective.

3.2 Site History Summary

Based on the observations made during fieldwork and the previous investigation across the site and its surrounding, the following summary for the current and historical uses has been compiled:

- The site was vacant and used for agricultural purposes up to circa 2004. Construction associated with the development of Amaroo around the site has commenced.
- Construction around the site is ongoing and in 2012 the site is being used as a compound. This use continues through to 2014 when the site has been revegetated with grass.

4. Site Condition and Environmental Setting

4.1 Topography

The topographic map presented in the Lotsearch report indicates the site has an elevation of approximately 627 to 628 m above Australian Height Datum (m AHD).

The general topography of the site was relatively flat with a 'channel' through the central portion of the site from the north boundary to the south boundary appearing approximately 0.5 m lower than the surrounding site.

4.2 Visible Signs of Contamination

No visible signs of contamination were observed across the surface of the site, although traces of concrete were observed on the surface of the site.

4.3 Fill

The Geotechnical investigation completed by Cardno (2018) did not indicate any fill material, although none of these test pits were located within the area that appeared to be used as storage between 2012 and 2013 during the residential development of the surrounding area. Building waste (concrete fragments) were noted at one location during the site inspection associated with the PSI. While no materials suspected of containing asbestos were observed, the presence of anthropogenic material may indicate the possible presence of asbestos containing materials (ACM).

4.4 Hydrogeology

A review of the Bureau of Mineral Resources (1984) '*Hydrogeology of the Australian Capital Territory and Environs*', indicates that groundwater beneath the site is situated within fractured aquifers with high yielding zones associated with the minor limestone beds, major fold closures and major geologic contacts. The quality of groundwater is expected to be variable to poor, although the general total dissolved solids (TDS) is anticipated to be between 500 to 1,000 milligrams per litre (mg/l) and the yield is estimated to be greater than 1.0 litres per second (l/sec).

Based on the topography and elevation of the site, the groundwater flow direction is likely to be in a south-westerly direction towards Gungahlin Pond (approximately 3.0 km southwest of the site).

Based on ACT Government data, one (1) abstraction groundwater borehole was located 1,644 m to the northeast of the site.

Two (2) groundwater boreholes were registered with the Bureau of Meteorology within a 2,000 m radius of the site. The nearest groundwater borehole is located 365 m to the west, while the other bore is 1,644 m to the northeast of the site.

No information regarding the condition of groundwater was available.

4.5 Hydrology

The site is bound by waterways to the north, south and west, and a stormwater retention pond is located approximately 25 m to the north-west of the site. To the west of the site is Ginninderra Creek which channels stormwater from the suburbs of Taylor and Moncrieff to the north to the Gungahlin Pond located to the south. Immediately south of the site is a tributary channel of

Ginninderra Creek which captures and directs stormwater from Jacka to the northeast. This channel flows into Ginninderra Creek adjacent to the southwest corner of the site.

Based on the topography at the site, surface water from the site is expected to enter both Ginninderra Creek and in its tributary to the south.

4.6 Geology

The 1:100,000 Geological Series, Canberra, New South Wales and Australian Capital Territory, Sheet 8727 (Bureau of Mineral Resources, 1992) shows that the site is underlain by Canberra Formation of Silurian age and is composed of mudstone, siltstone, minor sandstone, limestone, hornfels, dacitic ignimbrite and volcanoclastic sediments.

4.7 Soils

Soils are defined by the Williamsdale soil landscape as described by Jenkins, B.R. (2000). The soil landscape of the region has been identified as:

- Moderately deep, moderately well-drained Yellow Chromosols (Yellow Podzolic Soils) and brown Kandosols (Red and Yellow Earths) on upper rises and fan elements; and
- Moderately to very deep, poorly-drained Sodosols (Solodic Soils and Solodized Solonetz Soils) on lower rise and fan elements.

5. Preliminary Conceptual Site Model

Conceptual site models (CSM) are a method of presenting site contamination information and the relationships between sources of contamination, how it may have been introduced to the site, possible pathways for contaminant migration and exposure and the receptors that may be affected by contaminants.

Based on the information reviewed prior to conducting any intrusive investigation, the CSM was developed to assist with generating areas of environmental concern (AEC) based on the risk of contamination being present and the potential for exposure pathways.

The preliminary CSM is presented in the sections below.

5.1 Areas of Environmental Concern

One (1) area of environmental concern during the PSI:

- **AEC 1:** The central portion (north to south), northern and eastern boundaries of the site were which likely used for the storage of materials, machinery and other unidentified material/objects during construction of the surrounding residential developments.

5.2 Contaminants of Potential Concern

Based on the history of the site, the surrounding land uses, and respective AEC, the following contaminants of potential concern were identified:

Table 3 – Summary of COPCs and corresponding media

AECs	Contaminants of Potential Concerns (CoPCs)
AEC 1 – Potential imported fill and storage of unknown materials and objects	<ul style="list-style-type: none">• Total recoverable hydrocarbons (TRH)• Benzene, toluene, ethylbenzene, xylene (BTEX)• Polycyclic aromatic hydrocarbons (PAH)• Organochlorine/organophosphorus pesticides (OCP/OPP)• Polychlorinated biphenyls (PCB)• Speciated Phenols• Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc)• Asbestos (based on the presence of anthropogenic material)

5.3 Exposure Pathways and Receptors

For a contaminant to pose a risk to either human health and/or the environment, there must be a complete or potentially complete pathway that links the contaminant with the receptor. Identified receptors at the site are as follows:

- Current on-site users of the site.
- Future on-site workers and users for the site.
- Ecological receptors.
- Groundwater.
- Surface waters located adjacent to the site.

Common pathways for contaminants to migrate through the environment and result in exposure to receptors are summarised in **Table 4** below.

Table 4 – Summary of COPCs and corresponding media

Pathway	Contaminants of Concern	Exposure Pathway Complete or Potentially Complete (Yes/No)	Comments
Direct Contact with Soil including dermal contact and ingestion	TRH, BTEX, PAH, PCB, OPP/OCP, Phenols, and Heavy Metals	Yes – Potentially	Based on the potential sources, contamination may be present at the surface and therefore there is potential for a complete pathway for direct contact.
Direct Contact with Groundwater including dermal contact and ingestion	TRH, BTEX, PAH, Heavy metals	Yes – Potentially	Due to the shallow depth of groundwater beneath the site, excavation during the proposed development may intercept the groundwater therefore there is potential for a complete pathway for direct contact.
Inhalation of Asbestos Fibres	Inhalation of Asbestos Fibres	Yes – Potentially	No evidence of asbestos was identified on the ground surface during the initial site inspection. However, should asbestos be present in the soil profile, there is a potential for a complete pathway to be present if the soil is disturbed. Given the presence of anthropogenic material, there is a possibility that asbestos could be present.
Inhalation of gasses and vapour	TRH, BTEX	Yes – Potentially	Based on the potential sources, should unacceptable levels of volatile compounds be present on site that may pose a vapour risk, there may be a potential for a complete pathway to be present.

Based on the results of the PSI, potentially complete contaminant exposure pathways, which were dependent on whether COPCs are present, were identified.

6. Assessment Criteria

The assessment criteria for the investigation considers the land uses permitted under the PRZ1: Urban Open Space and the proposed tennis centre.

The adopted criteria have been sourced from *NEPC (1999) National Environment Protection Assessment of Site Contamination Measure 1999' as amended 2013 (ASC NEPM 2013)* and include the following:

- HIL C - Health based investigation levels for public open spaces such as parks, playgrounds, playing fields (e.g. ovals) secondary schools and footpaths.
- HSL C - Health Screening Levels for public open spaces for a clay lithology and a depth of 0 m to <1 m below ground level for soil vapour HSLs for vapour intrusion.
- EILs - Ecological Investigation Levels for aged contaminants on Urban Residential and Open Public Spaces.
- ESLs - Ecological Screening Levels for TRH fractions for Urban Residential and Open Public Spaces land use based on fine texture.
- Management Limits for residential, parkland and public open space – Table 1B(7) of ASC NEPM 2013.

Physicochemical properties used for deriving the EIL criteria were based on conservative values that are considered representative of the ACT region. These values are presented in **Table 5** below.

Table 5 – Used Physicochemical Properties

Physicochemical Property	Unit	Value
pH	pH Unit	5.5
CEC	meq / 100g	5
% Clay	%w / w	1

The EIL criteria were calculated using the ASC NEPM 2013 EIL Interactive (Excel) Calculation Spreadsheet using values for aged contaminants. Results of the EIL calculations are presented in **Appendix F**.

The adopted criteria are presented in **Table 6** below.

Table 6 – Soil assessment criteria

Contaminant Group	HIL/HSL – C (mg/kg)	Management Limits – Residential, Parkland and Open Space (mg/kg)	ESL/EIL- Urban Residential and Public Open Space (mg/kg)
Heavy Metals			
Arsenic	300	-	100
Cadmium	90	-	-
Chromium (VI)	300 ¹	-	190 ²
Copper	17,000	-	110
Lead	600	-	1,100
Nickel	1,200	-	35

Contaminant Group	HIL/HSL – C (mg/kg)	Management Limits – Residential, Parkland and Open Space (mg/kg)	ESL/EIL- Urban Residential and Public Open Space (mg/kg)
Zinc	30,000	-	260
Mercury	80	-	-
TRH/BTEX/PAH			
F1	NL	800	180
F2	NL	1,000	120
F3	-	3,500	1,300
F4	-	10,000	5,600
Benzene	NL	-	65
Toluene	NL	-	105
Ethylbenzene	NL	-	125
Xylene	NL	-	45
Naphthalene	NL	-	170
Benzo(a)pyrene	-	-	0.7
Carcinogenic PAHs (as BaP TEQ)	3	-	0.7
Total PAHs	300	-	-
OCP/OPP			
DDT+DDE+DDD	400	-	180
Aldrin and Dieldrin	10	-	-
Chlordane	70	-	-
Endosulfan	340	-	-
Endrin	20	-	-
Heptachlor	10	-	-
HCB	10	-	-
Methoxychlor	400	-	-
Mirex	20	-	-
Toxaphene	30	-	-
Atrazine	400	-	-
Chlorpyrifos	250	-	-
Bifenthrin	730	-	-
Phenols and PCBs			
Phenol	40,000	-	-
Pentachlorophenol	120	-	-

Contaminant Group	HIL/HSL – C (mg/kg)	Management Limits – Residential, Parkland and Open Space (mg/kg)	ESL/EIL- Urban Residential and Public Open Space (mg/kg)
Cresols	4,000	-	-
PCBs	1	-	-
Asbestos			
All forms of asbestos	No trace asbestos detected	-	-

Notes:

¹Chromium criterion value is for hexavalent chromium, while chromium measured by the laboratory is total chromium (total of Cr III and CrVI). Should the total chromium concentration exceed the criterion value, then the sample would be speciated for Cr VI only.

²EIL for chromium is based on CrIII concentrations

7. Data Quality Objectives

This section outlines the data quality objectives (DQOs) applied to the investigation.

The DQO process is a planning tool that relies on scientific methods for establishing criteria for data quality and for designing data collection programs. The DQO defines the experimental process required to test a hypothesis. The DQO process aims to ensure that efforts relating to data collection are cost-effective, by eliminating unnecessary, duplicative or overly precise data whilst at the same time, ensuring the data collected is of sufficient quality and quantity to support defensible decision making.

The DQO process consists of seven steps, which are designed to clarify the study objectives, define the appropriate type of data and specify tolerable levels of potential decision errors. The seven-step DQO process adopted for this investigation is as follows:

Step 1: State the Problem – concisely describe the problem to be studied. Review prior studies and existing information to gain a sufficient understanding to define the problem;

Step 2: Identify the Decision – identify what questions the study will attempt to resolve, and what actions may result;

Step 3: Identify the Inputs to the Decision – identify the information that needs to be obtained and the measurements that need to be taken to resolve the decision statement;

Step 4: Define the Study Boundaries – specify the time periods and spatial area to which decisions will apply. Determine when and where data should be collected;

Step 5: Develop a Decision Rule – define the statistical parameter of interest, specify the action level, and integrate the previous DQO outputs into a single statement that describes the logical basis for choosing among alternative actions;

Step 6: Specify Tolerable Limits on Decision Errors – define the decision maker's tolerable decision error rates based on a consideration of the consequences of making an incorrect decision; and

Step 7: Optimise the Design –evaluate information from the previous steps and generate alternative data collection designs. Choose the most resource-effective design that meets all DQOs.

The DQOs derived for the investigation are presented in **Table 7**.

Table 7 – DQOs derived for the Investigation

Step	Details
Step 1: State the Problem	The site is to be developed for use as a tennis centre. Based on the history of the site, there was uncertainty whether contaminants of potential concern may be present on the site that may compromise the suitability of the site from a contamination perspective.
Step 2: Identify the Decision	The suitability of the site is to be assessed for future development from a contamination perspective. The site would be assessed as suitable should concentration of COPCs be below the adopted health and ecological based criteria.
Step 3: Identify the Inputs into the Decision	The COPCs selected are based on the review of previous on- and off-site investigations and based on former site activities. The site is zoned PRZ1: Urban Open Space and is to be developed for a new tennis centre. Inputs to assess the suitability of the site will include: <ul style="list-style-type: none"> • Historical information

Step	Details
	<ul style="list-style-type: none"> • Visual indicators of contamination during the collection of soil samples • Laboratory results of COPCs and whether they exceed the adopted criteria for the protection of human health and the environment.
Step 4: Define the Site Boundaries	<p>The site is situated within the northern portion of Block 4 Section 109 Amaroo. The lateral boundaries of the site are shown on Figure 2. Vertical boundaries of the investigation are limited to the depth of each test pit which ranged from 1.1 m to 3.1 m bgl.</p> <p>The investigation was completed on 28 April 2023. The results of the assessment limited to the condition of the site as of the date sampling is completed.</p>
Step 5: Develop a Decision Rule	<ul style="list-style-type: none"> • If the laboratory quality assurance / quality control data are within acceptable ranges, the results will be considered suitable for use. • If the concentrations of contaminants in samples analysed exceed the adopted assessment criteria, further investigation may be required to assess the boundaries of the contamination or assess the site-specific risks contaminants may pose to the future land use. • If the COPC is reported below the laboratory detection limit in the samples applicable to a specific pathway, then it will be considered that there is no evidence of a potential complete source-pathway-receptor linkage and therefore inclusion of that pathway in further assessment may not be required.
Step 6: Specify Tolerable Limits	<p>The tolerable limits for the investigation adopted for quality assurance/quality control (QA/QC) purposes are as follows:</p> <ul style="list-style-type: none"> • The relative percentage difference (RPD) for laboratory duplicates is as per the laboratory's quality assurance targets accepted under their NATA accreditation. • Recovery of matrix spikes and surrogate spikes is as per the laboratory's Quality Assurance targets accepted under their NATA accreditation. <p>The tolerable limits for field QA/QC and duplicates data are as follows:</p> <ul style="list-style-type: none"> • RPD criteria of 30% or less, for concentrations > or = 5 times PQL.
Step 7: Optimise the Design	<p>The investigation program for this assessment is detailed in Section 8 to adequately characterise the identified risks of contamination across the site (Section 3 and Section 4) and in general accordance with the NSW EPA (2022) 'Contaminated Land Guidelines – Sampling Design Part 1 - Application 'Sampling Design Guidelines'.</p> <p>As a summary, fifteen (15) were advanced for the collection of soil samples to assess the site for possible contaminants of concern.</p>

8. Sampling, Analysis and Quality Plan

Details of the sampling and analytical plan for the investigation are presented in the following sections.

8.1 Chronology of Events

The chronology of key project events is summarised in **Table 8** below:

Table 8 – Summary of the Chronology of Works

Date	Event
31 March 2023	Lanterra was engaged by Stantec to commence the investigation.
26 April 2023	Advancement of test pits for the collection of soil samples and sample dispatched to laboratory.
1 May 2023	Soil Samples received at laboratory.
8 May 2023	Receipt of analytical results.
20 June 2023	DSI report issued.

8.2 Sampling Plan

To characterise the condition of soil on the site, the fifteen (15) test pits were advanced across the site.

Sample locations were positioned using a judgmental sampling plan across the site. For a site with an area of 13,500 m², the NSW EPA '*Sampling Design – Part 1: Application*' recommends twenty-one (21) sample locations. However, based on the site history and potential contamination risk, the fifteen (15) sample locations were considered appropriate based on the following:

- The main activity of concern was the former compound where any potential impact would have been limited to the surface.
- Any contamination on the site is inferred to be associated with a 'top down' style of contamination where leaks or spills would impact the soil.
- The test pitting as a sampling method was selected to better assess for fill.

Based on this sampling design, a contaminant hotspot with a diameter of 34.2 m would be detected with adopted grid size of approximately 29.0 m. This has been calculated using the methodology presented in Appendix C of the NSW EPA (2022) '*Sampling Design Part 1 – Application*'.

The locations of each test pit are presented on **Figure 2, Appendix A**.

8.2.1 Quality Assurance / Quality Control

For quality assurance / quality control (QA/QC) purposes, the following samples were collected in accordance with AS4482.1 (2005).

- One (1) field duplicate sample for each twenty (20) primary samples to be analysed by the primary laboratory to assess the precision of the results;
- One (1) field triplicate sample for each twenty (20) primary samples to be analysed by a secondary laboratory to assess the accuracy of the primary laboratory,

8.3 Analytical Plan

From the samples collected across the site, the analytical plan presented in **Table 9** was executed to assess the identified COPCs.

Table 9 – Analytical plan for the investigation

Sample Type	Sample Media	TRH/BTEX/ PAH	OCP/OPP/ PCB	Phenols	Heavy Metals	Asbestos ID
Primary	Soil	16	16	16	16	16
Duplicate	Soil	1	1	1	1	0
Triplicate	Soil	1	0	0	1	0

Soil samples from test pits were recovered from the bucket and disposable gloves were used for the collection of samples. No reusable equipment was used and therefore a rinsate sample was not collected.

9. Methods

9.1 Soil Sampling Methods

The contamination assessment was completed in conjunction with a geotechnical investigation by Douglas Partners. A suitably qualified environmental scientist from Lanterra was present on site on 26 April for the collection of soil samples from each test pit. The sampling method is outlined below.

- Each sample location was cleared of underground services by a Telstra accredited underground service locator prior to excavating. The service location was completed by Douglas Partners and their accredited service locator.
- Test pits were advanced with an excavator operated by a contractor engaged by Douglas Partners.
- The target depth of each borehole was 2.0 m with the aim of advancing each hole into natural soil/rock. Soil boreholes were advanced to depths between 1.1 m below ground level (bgl) and 3.1 m bgl.
- Soil samples were collected at the surface, 0.5 m, 1.0 m and then each metre thereafter, at changes in lithology or lenses of gross contamination.
- Each sample was collected directly from the excavator bucket with a new, clean pair of nitrile gloves. Care was taken to retrieve the sample from soil that was not in contact with the edge of the bucket.
- Each soil sample was described in general accordance with the Unified Soil Classification System (USCS) and details of any discolouration, staining, odours or other indicators of contamination noted.
- A subsample was placed into a low-density polyethylene zip-lock bag and field screened with a calibrated photoionisation detector (PID). A copy of the calibration certificate is presented in **Appendix E**.
- Two (2) duplicate and two (2) triplicate QA/QC samples were collected in general accordance with Australian Standard AS4482.1-2005. It is noted that only one set of QA/QC samples were analysed.
- Soil samples were placed into a laboratory prepared 250 mL glass jar for the analysis of heavy metals and TRH.
- Each sample was labelled with the details of the sample, including the sample name, the job number, the date of sample and the sample depth.
- During the collection of QA/QC samples, the primary, duplicate and triplicate sample containers were filled to approximate 70%, before the final 30% of soil was placed in each jar to minimise heterogeneity without physically mixing the soil.
- For asbestos ID analysis, approximately 30 grams of soil were placed in a zip lock bag.
- All samples were immediately placed and stored in an ice-filled esky to keep them chilled. Samples were transported to a NATA accredited laboratory with the signed chain of custody (COC) form with the required analysis.
- All testpits were backfilled once they had been completed before moving to the next sample location.

9.2 Decontamination Procedures

The following methods were adopted to minimise the potential for cross-contamination between samples:

- A clean new pair of nitrile gloves and samples were placed directly into the laboratory supplied containers.
- When collecting samples from the excavator bucket, care was taken to collect samples from the centre, not touching the bucket.
- As no reusable equipment was, no equipment washing was necessary.

10. Quality Assurance and Quality Control Plan

10.1 Field QA/QC

Field duplicate and field triplicate samples were collected for calculating the relative percent difference (RPD) and assess the precision and accuracy of the laboratory. An RPD of less than 30% is considered acceptable where the analyte concentration is greater than five (5) times the laboratory LOR. Should the RPD be greater than 30%, then further investigation as to the reason for high RPD would occur.

The duplicate and triplicate samples collected are presented in **Table 10** below:

Table 10 – Summary of Field Duplicate and Triplicate Samples Collected and Analysed

Sampling Date	Primary Sample	Duplicate	Triplicate
26/4/2023	P109 0.5-0.6	QC1	QC2

A summary of field duplicate and triplicate analytical results is provided in **Appendix B**, while the QA/QC compliance with the DQOs for soil is presented in **Table 11** below. Samples QC3 and QC4 were not analysed.

Table 11– Summary of QA/QC sample results for Soil

Sample Type	Number of samples	Target	Actual	Criteria Met (Yes/No)
Primary samples	16			
Duplicate (QA/QC)	1	> 5 %	6.25 %	Yes
Triplicate (QA/QC)	1	> 5 %	6.25 %	Yes
Total RPDs	160			
Total RPDs > 5x LOR & > 30%	1	≤ 5%	0.6 %	Yes

10.1.1 Relative Percent Difference Calculations

RPD calculations for soil samples were below the threshold value of 30% for each sample where the measured concentration was at least five (5) times the laboratory LOR, with the exception of the following:

Table 12– Summary of Duplicate and Triplicate RPD Exceedances for soil.

Primary Sample	QA/QC Sample	Analyte	RPD (%)
TP109 0.5-0.6	QC3	Copper	32

The above concentrations of analytes could be attributed to sample heterogeneity. In addition, the analytes in **Table 12** were below the adopted site criteria. Therefore, these RPD exceedance do not alter the outcomes of the investigation.

10.2 Laboratory Quality Assurance/Quality Control

A review of the laboratory QA/QC data is summarised in the table below (see **Appendix B**).

Laboratory Accreditation

All analysis was performed in NATA accredited laboratory as follow:

- **Primary Laboratory:** SGS Australia Pty Ltd (NATA accreditation No. 2562)
- **Secondary Laboratory:** Envirolab Services Pty Ltd (NATA accreditation No. 2901)

Holding Times

All samples were extracted for each analyte within the required holding time.

Surrogate and Spike Recoveries

All surrogate recoveries were within the tolerable limits for soil and groundwater samples with the exception of the following:

Table 13– Surrogate samples that Exceed the Laboratory QA/QC criteria.

Analyte	Sample Number	Recovery (%)	Laboratory comments
2,4,6 tribromophenol	SE246681.014	58	2 of 3 surrogates were within acceptance criteria

The laboratory advised that at least 2 of 3 laboratory surrogate samples were within the acceptance criteria for the analytes listed above. Based on phenol concentrations being below the laboratory LOR, the exceedance does not impact the outcome of the investigation.

Matrix Spike

All matrix spike recoveries were within tolerable limits with the exception of the following:

Table 14 – Matrix spike samples that Exceed the Laboratory QA/QC criteria.

QC sample	Sample Number	Analyte	Recovery (%)
SE246681.001	LB278210.004	Zinc	54
SE246681.001	LB278199.004	TRH C10-C14	153
		TRH C15-C28	214
		TRH >C10-C16	152
		TRH >C16-C34 (F3)	208

The laboratory advised that the above exceedances were due to matrix interference.

Based on the fact that TRH compounds obtained from the single sample were below the laboratory LOR, the exceedances are not considered to have impacted the outcome of this investigation.

Laboratory Control Sample Results

All laboratory control sample results were within the tolerable limits.

Laboratory Duplicate Results

All laboratory duplicate sample results were within the tolerable limits with the exception of the following.

Table 15 – Duplicate samples that Exceed the Laboratory QA/QC criteria.

Original	Duplicate	Analyte	RPD (%)
SE246716.003	LB278199.025	Fluoranthene	94
		Pyrene	95
		Total PAH	160

The laboratory advised that copper RPD exceedances were due to matrix interference.

Considering the nature of the site and the low concentrations of copper and PAH compounds across the entirety of it, these exceedances were not considered to have impacted the outcome of the investigation.

Laboratory Blank Results

All method laboratory blanks were below the laboratory LOR and therefore within tolerable limits.

11. Results

The findings from site inspection and laboratory analytical results of the investigation are presented in the following sections.

11.1 Visual Observations / Field Measurements

11.1.1 Soil

At the time of sampling, the site was vacant grassland. The general soil profile observed during the advancement of test pits can be summarised as follows:

- Topsoil comprising of a clayey silt to silty clay that was brown to dark brown, dry to moist and soft to loose. The thickness of topsoil was approximately 0.4 m across the site.
- Fill material was observed beneath the topsoil at locations Pit 104, Pit 105, Pit 106 and Pit 109. The fill ranged in thickness from 0.6 m to 2.1 m in Pit 106. The fill comprised of clayey silt to clayey gravel that ranged in colour of grey to light brown to yellow brown.
- Natural material was observed beneath the topsoil in Pits 101 to 103, Pit 107, Pit 108 and Pits 110 to 115. Natural material comprised of completely to extremely weathered rocks of the Canberra Formation where siltstone gravels were present in some test pits.
- Water infiltrated the following test pits:
 - Pit 104 at 2.2 m bgl.
 - Pit 105 at 2.3 m bgl.
 - Pit 106 at 2.0 m bgl.
 - Pit 107 at 1.9 m bgl.
 - Pit 108 at 2.0 m bgl.

These locations were situated in the northern part of the site between Ginninderra Creek located to the west and the tributary (which is also a stormwater channel) that is located to the south.

PID screening of soil samples indicated a low potential for ionisable volatile compounds with a maximum of PID measurement of 0.3 ppm across the site.

Copies of the borehole logs are presented in **Appendix D**.

11.2 Analytical Results

A summary of the analytical results is presented in **Table 1, Appendix B**, while copies of the laboratory reports, sample receipt and COCs are presented in **Appendix C**. A summary of the results are presented in the sections below.

TRH, BTEX, PAH

Concentrations of TRH, BTEX and PAHs were below the laboratory limit of reporting (LOR) with the exception of the following:

- TP105 0.0-0.1: TRH >C16-C34 (F3) – 110 mg/kg
TRH >C34-C40 (F4) – 120 mg/kg

The concentrations were below the adopted HSL C criteria for the protection of human health and ESL values for urban residential and public open space.

OCP/OPP, PCB, Phenols

Concentrations of OCP/OPP, PCB and Phenols were below the laboratory LOR and therefore below the adopted criteria.

Heavy Metals

Concentration of heavy metals in analysed soil sample are summarised as follows:

- Concentrations of cadmium and mercury were below the laboratory LOR in each sample analysed.
- Concentrations of arsenic, chromium, copper, lead, nickel and zinc were above the laboratory LOR, but all concentrations were below the adopted HIL C and EIL criteria for urban residential and public open space.

Asbestos

Soil samples were analysed for the presence of asbestos. No pieces of materials suspected of containing asbestos were observed and no asbestos was detected in any of the analysed soil samples.

12. Revised Conceptual Site Model

Based on the results of the intrusive investigation, the CSM has been revised to reflect information obtained from the detailed site investigation.

12.1 Summary of Site Condition

Based on the results of soil sampling, no contamination issues were identified on the site. A summary of the site conditions encountered during the investigation:

- Concentrations of TRH, PAH, OCP/OPP, PCB, BTEX, Phenols, and Heavy Metals in each soil sample analysed recorded COPCs concentrations below the adopted assessment criteria for urban open space land use.
- No anthropogenic material was observed across the site during the collection of soil samples.

The presence of TRH in near-surface soil at Pit 105 was detected at low concentrations. However, the limited occurrence of these compounds in near-surface soil poses no significant risk to human health or ecological receptors.

12.2 Potential Receptors and Exposure Pathways

Based on the results of the investigation, the CSM has been revised and is presented in the table below:

Table 16 – Revised Conceptual Site Model

Pathway	CoPCs	Exposure Pathway	Receptors	Comments
Direct Contact with soil and building materials including dermal contact and ingestion	TRH, BTEX, OCP, OPP, PCB, Phenols Metals	Incomplete	Future site users Site workers Site neighbours	No COPCs were present above the adopted criteria in soil and therefore there is no exposure pathway.
Direct Contact with Groundwater including dermal contact and ingestion	TRH, BTEX, PAH	Incomplete	Future site users Site workers Site neighbours	No groundwater abstraction bores are present on the site, while no contaminant sources that may impact groundwater are present. Therefore, there is no exposure pathway between groundwater and receptors on the site.
Inhalation of gasses and vapour	TRH, BTEX	Incomplete	Future site users Site workers Site neighbours	No volatile compounds were detected above the adopted criteria in analysed soil samples, therefore, there is no exposure pathway between volatile compounds and receptors.
Inhalation of asbestos fibres	Respirable asbestos fibres	Incomplete	Future site users Site workers Site neighbours	No ACM was identified while sampling soil across the site and no asbestos fibres or fibrous asbestos were recorded in the analytical results.

13. Summary and Conclusions

Stantec engaged Lanterra Consulting Pty Ltd (Lanterra) to complete a detailed environmental site investigation for part of Block 4 Section 109, Amaroo, ACT 2914

The site is located in the northern section of Block 4 Section 109 which is zoned PRZ1: Urban Open Space. While Block 4 Section 109 has an area of 310,006 m² under the Territory Plan, the site which is the subject of this investigation, has an area of approximately 13,500 m².

The site is predominantly undeveloped parkland although a network of sealed foot / bike paths are present across its central and southern portion. Sporting fields and associated infrastructure including a club house and sealed carpark are observed to the south of the site. Ginninderra Creek and an associated tributary are used for stormwater control while a retention pond is located to the northwest of the site.

The results of this investigation can be summarised as follows:

- Topsoil was approximately 0.4 m across the site.
- Fill material was observed beneath the topsoil at locations Pit 104, Pit 105, Pit 106 and Pit 109 which ranged in thickness from 0.6 m to 2.1 m.
- Natural material was observed beneath the topsoil or fill where it was encountered.
- Water infiltrated five (5) test pits at a depth of approximately 2 m bgl in the
- Concentrations of COPCs were below the adopted HIL/HSL C and EIL/ESL criteria.

In summary, no indications of contamination that may compromise the suitability of the site for the proposed tennis club were identified.

Therefore based on the findings of this contamination assessment, the site is considered suitable for land uses permitted under PRZ1: Urban Open Space.

While the site is considered suitable for the proposed tennis centre, the following recommendations are made:

- Prior to any earthworks, an unexpected finds protocol (UFP) to manage any unexpected occurrences of contamination must be prepared by a suitably qualified environmental consultant.
- Due to the presence of fill that has been imported onto the site, soil that requires removal from the site must be assessed in accordance with the ACT EPA *'Information Sheet 4 – Requirements for the Reuse and Disposal of Contaminated Soil in the ACT'*.

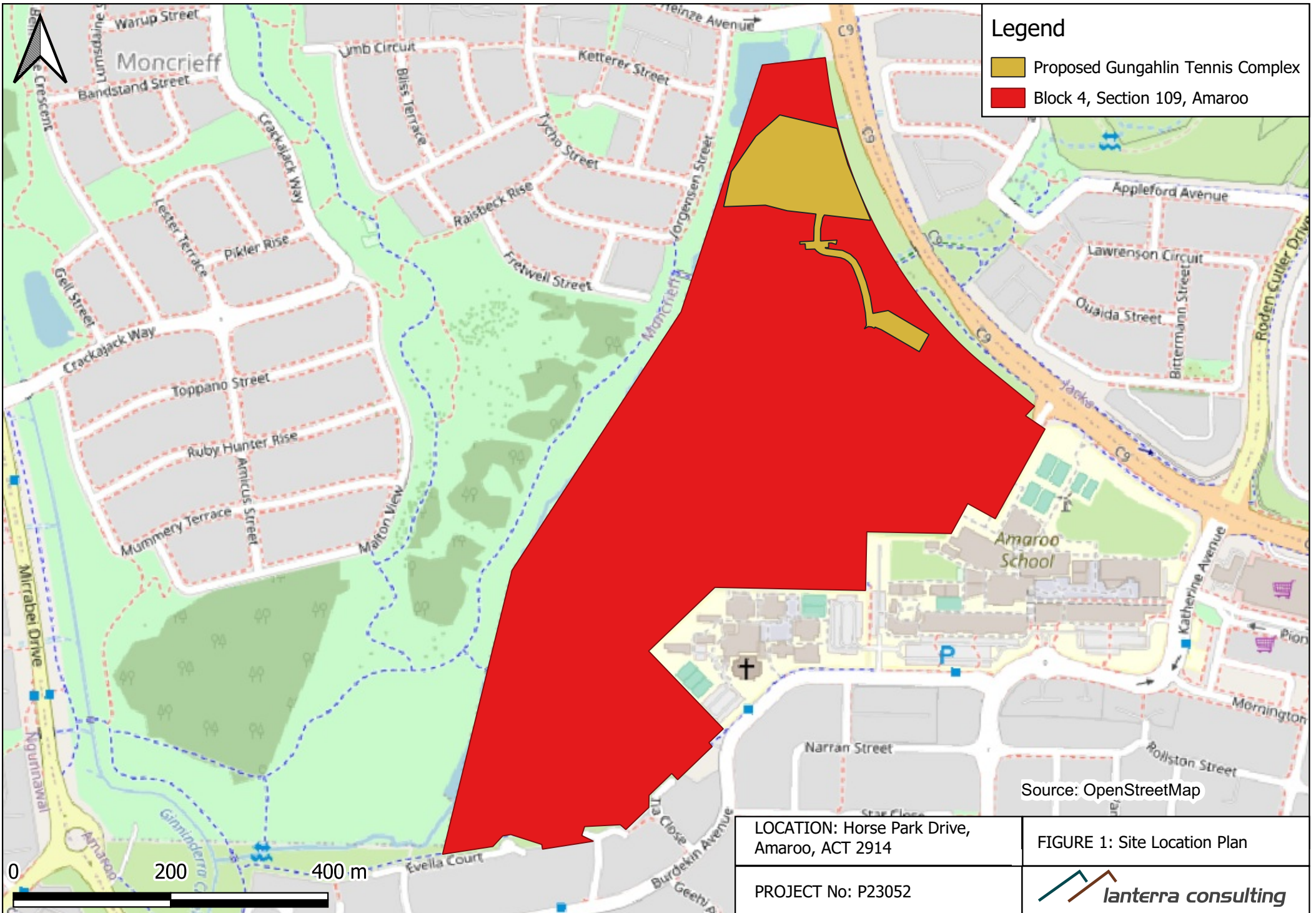
14. References

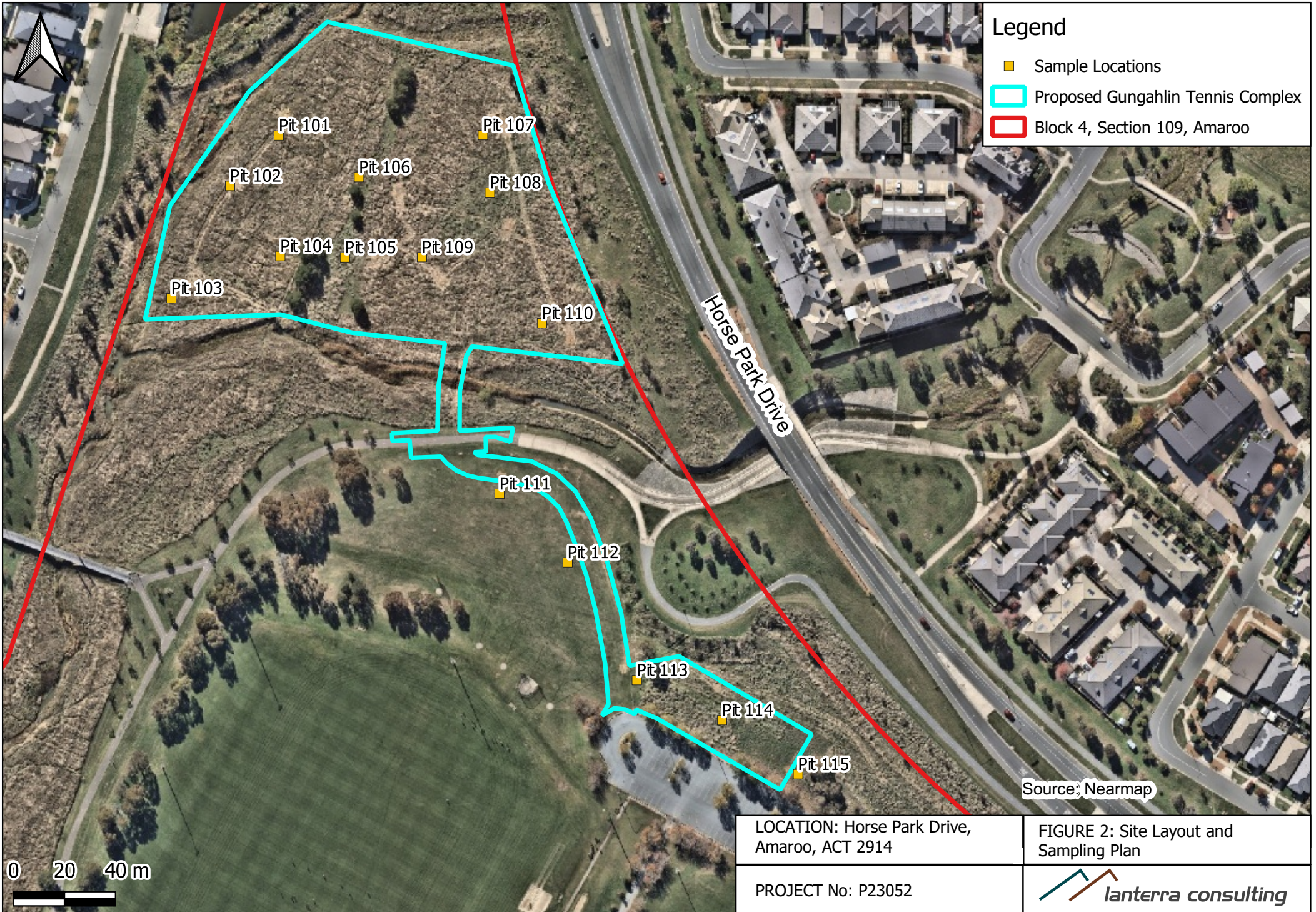
- ACT Government (2022) Information Sheet 4 - Requirements for the Reuse and Disposal of Contaminated Soil in the ACT
- ACT Government (2020) Information Sheet 11 - EPA Report Submission Requirements
- ACT Government (2021) Environmental Standards: Assessment and Classification of Liquid and Non-Liquid Wastes
- ACT EPA (2017) Contaminated Sites Environment Protection Policy
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- Bureau of Mineral Resources, Geology and Geophysics (1992) 1: 100,000 Geological Series, Canberra, New South Wales and Australian Capital Territory Sheet 8727
- Cardno (ACT/NSW) Pty Ltd (2018) Geotechnical Investigation, Amaroo Tennis Courts
- Lanterra Consulting Pty Ltd (2022) Preliminary Site Investigation, Part Block 4, Section 109, Amaroo, ACT 2914
- National Environmental Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended April 2013) (hereafter ASC NEPM 2013)
- NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Ed.) (2017)
- NSW EPA (2022) 'Sampling Design Part 1 – Application'
- NSW EPA (2014) Waste Classification Guidelines: Part 1 Classifying Waste
- NSW EPA (2016) Addendum to Waste Classification Guidelines: Part 1 Classifying Waste
- NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites
- Standards Australia (2005). Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds AS4482.1 (2005) and Part 2: Volatile substances, AS4482.2 (2005).

15. Glossary

ACM	Asbestos-containing material
ACT	Australian Capital Territory
AHD	Australian Height Datum
AEC	Area of Environmental Concern
ASC NEPM 2013	National Environment Protection (Assessment of Site Contamination Measure 1999' as amended 2013.
Bgl	Below ground level
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CEC	Cation Exchange Capacity
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
ESL	Ecological Screening Level
EPA	Environment Protection Authority
HIL	Health Investigation Level
HDPE	High-density polyethylene
HSL	Health Screening Level
kg	Kilogram
Lanterra	Lanterra Consulting Pty Limited
LDA	Land Development Agency
LOR	Limit of Reporting
mg	milligram
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure
NSW	New South Wales
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference
SAQP	Sampling, Analysis and Quality Plan
SQEC	Suitably Qualified Environmental Consultant
TRH	Total Recoverable Hydrocarbon
UFP	Unexpected Finds Protocol
USCS	Unified Soil Classification System
UST	Underground Storage Tank

Figures





LOCATION: Horse Park Drive, Amaroo, ACT 2914

FIGURE 2: Site Layout and Sampling Plan

PROJECT No: P23052



Results Summary Tables

P23052 - Detailed Site Investigation, Block 4 Section 109, Amaroo, ACT

Appendix B Table 1: Soil Analytical Results

Method_Type	ChemName	Units	EQL	ASC NEPM (2013) EIL/ESL Urban Residential and Public Open Space	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0- 2.0m/2.0-4.0m	ASC NEPM (2013) HIL A	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1	TP105 2.0-2.1	
							Depth (m)	0.0-0.1	0.5-0.6	1.0-1.1	0.5-0.6	0.0-0.1	2.0-2.1
				FINE	CLAY		Sampled Date	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	
							Sample Type	In-situ	In-situ	In-situ	In-situ	In-situ	
Heavy Metals in Soil	Arsenic, As	mg/kg	1	100		100		12	15	10	16	8	23
	Cadmium, Cd	mg/kg	0.3			20	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
	Chromium, Cr	mg/kg	0.5	410		100		19	19	19	22	13	29
	Copper, Cu	mg/kg	0.5	110		6000		21	20	18	18	15	27
	Lead, Pb	mg/kg	1	1,100		300		21	23	22	21	19	26
	Nickel, Ni	mg/kg	0.5	35		400		15	13	14	18	11	28
	Zinc, Zn	mg/kg	2	260		7400		62	66	57	64	59	86
	Mercury	mg/kg	0.05			40	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PAHs (Polynuclear Aromatic Hydrocarbons) in Soil	Naphthalene	mg/kg	0.1	170	NL / NL / NL		<0.1	<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	<0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1				<0.1	<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	<0.1	<0.1
	Acenaphthene	mg/kg	0.1				<0.1	<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	<0.1	<0.1
	Phenanthrene	mg/kg	0.1				<0.1	<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	<0.1	<0.1
	Fluoranthene	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1				<0.1	<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	<0.1	<0.1
	Benzo(b)fluoranthene	mg/kg	0.1				<0.1	<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	<0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	0.7			<0.1	<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	<0.1	<0.1
	Dibenzo(a,h)anthracene	mg/kg	0.1				<0.1	<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	<0.1	<0.1
	Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2			3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3			3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2			3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Total PAH (16)	mg/kg	0.8			300	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8

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Appendix B Table 1: Soil Analytical Results

Method_Type	ChemName	Units	EQL	ASC NEPM (2013) E1L/ESL Urban Residential and Public Open Space FINE	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0- 2.0m/2.0-4.0m CLAY	ASC NEPM (2013) HIL A	Sample Name	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1	TP105 2.0-2.1
							Depth (m)	0.0-0.1	0.5-0.6	1.0-1.1	0.5-0.6	0.0-0.1	2.0-2.1
							Sample Date	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023
							Sample Type	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ
BTEX + VOC	Benzene	mg/kg	0.1	65	0.7 / 1 / 2 / 3		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Toluene	mg/kg	0.1	105	480 / NL / NL		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Ethylbenzene	mg/kg	0.1	125	NL / NL / NL		<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	<0.2	
	o-xylene	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Total Xylenes	mg/kg	0.3	45	110 / 310 / NL		<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	<0.6	
	Benzene (F0)	mg/kg	20				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	TRH C6-C9	mg/kg	0.1				<20	<20	<20	<20	<20	<20	
	TRH C6-C10	mg/kg	25				<25	<25	<25	<25	<25	<25	
	TRH C6-C10 minus BTEX (F1)	mg/kg	25	180	50 / 65 / 100		<25	<25	<25	<25	<25	<25	
	TRH (Total Recoverable Hydrocarbons) in Soil	TRH C10-C14	mg/kg	20				<20	<20	<20	<20	<20	<20
		TRH C15-C28	mg/kg	45				<45	<45	<45	<45	50	<45
		TRH C29-C36	mg/kg	45				<45	<45	<45	<45	60	<45
TRH C37-C40		mg/kg	100				<100	<100	<100	<100	<100	<100	
TRH >C10-C16		mg/kg	25				<25	<25	<25	<25	<25	<25	
TRH >C10-C16 - Naphthalene (F2)		mg/kg	25	120	280 / NL/NL		<25	<25	<25	<25	<25	<25	
TRH >C16-C34 (F3)		mg/kg	90	1300			<90	<90	<90	<90	110	<90	
TRH >C34-C40 (F4)		mg/kg	120	5600			<120	<120	<120	<120	<120	<120	
TRH C10-C36 Total		mg/kg	110				<110	<110	<110	<110	120	<110	
TRH >C10-C40 Total (F bands)		mg/kg	210				<210	<210	<210	<210	<210	<210	
PCBs in Soil	Arochlor 1016	mg/kg	0.2				<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	
	Arochlor 1221	mg/kg	0.2				<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	<0.2	
	Arochlor 1242	mg/kg	0.2				<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	<0.2	
	Arochlor 1254	mg/kg	0.2				<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	<0.2	
	Arochlor 1262	mg/kg	0.2				<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	<0.2	
	Total PCBs (Arochlors)	mg/kg	1				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Speciated Phenols	Phenol	mg/kg	0.5			3000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2-methyl phenol (o-cresol)	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	3/4-methyl phenol (m/p-cresol)	mg/kg	1				<1	<1	<1	<1	<1	<1	
	Total Cresol	mg/kg	1.5			400	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	
	2-chlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2,4-dimethylphenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2,6-dichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2,4-dichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2,4,6-trichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2-nitrophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	4-nitrophenol	mg/kg	1				<1	<1	<1	<1	<1	<1	
	2,4,5-trichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1				<1	<1	<1	<1	<1	<1	
	Pentachlorophenol	mg/kg	0.5			100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	2,4-dinitrophenol	mg/kg	2				<2	<2	<2	<2	<2	<2	
4-chloro-3-methylphenol	mg/kg	2				<2	<2	<2	<2	<2	<2		

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Appendix B Table 1: Soil Analytical Results

Method_Type	ChemName	Units	EQL	ASC NEPM (2013) E1L/ESL Urban Residential and Public Open Space FINE	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0- 2.0m/2.0-4.0m CLAY	Sample Name	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1	TP105 2.0-2.1
						Depth (m)	0.0-0.1	0.5-0.6	1.0-1.1	0.5-0.6	0.0-0.1	2.0-2.1
						Sampled Date	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023
						Sample Type	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ
					ASC NEPM (2013) HIL A							
Organochlorine Pesticides	Hexachlorobenzene (HCB)	mg/kg	0.1			10	<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	<0.1
	Lindane (gamma BHC)	mg/kg	0.1				<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	<0.1
	Aldrin	mg/kg	0.1				<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	<0.1
	Delta BHC	mg/kg	0.1				<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	<0.1
	o,p'-DDE	mg/kg	0.1				<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	<0.2
	Gamma Chlordane	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Alpha Chlordane	mg/kg	0.1			50	<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	<0.1
	p,p'-DDE	mg/kg	0.1				<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	<0.2
	Endrin	mg/kg	0.2				<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	<0.1
	o,p'-DDT	mg/kg	0.1				<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	<0.2
	p,p'-DDD	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	p,p'-DDT	mg/kg	0.1	180			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1			270	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Endrin aldehyde	mg/kg	0.1			10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Methoxychlor	mg/kg	0.1			300	<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	<0.1
	Isodrin	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Mirex	mg/kg	0.1			10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	DDb+DDE+DDT	mg/kg	0.6			240	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Organophosphorus Pesticides	Dichlorvos	mg/kg	0.5				<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	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5				<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	<0.2
	Malathion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2			160	<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	<0.2
	Bromophos Ethyl	mg/kg	0.2				<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	<0.5
	Ethion	mg/kg	0.2				<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	<0.2
Asbestos	Asbestos Detected	No unit	0				N.A.	N.A.	N.A.	No	No	No
	Estimated Fibres	%w/w	0.01				N.A.	N.A.	N.A.	<0.01	<0.01	<0.01

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Appendix B Table 1: Soil Analytical Results

Method_Type	ChemName	Units	EQL	ASC NEPM (2013) EIL/JESL Urban Residential and Public Open Space	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0-2.0m/2.0-4.0m	ASC NEPM (2013) HIL A	Sample Name	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6	TP115 0.0-0.1	QC1			
							Depth (m)	1.0-1.1	0.0-0.1	0.5-0.6	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6
							Sample Date	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023
				FINE	CLAY		In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ			
Heavy Metals in Soil	Arsenic, As	mg/kg	1	100		100	6	6	13	15	12	21	8	4	10	10	15	15			
	Cadmium, Cd	mg/kg	0.3			20	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			
	Chromium, Cr	mg/kg	0.5	410		100	24	11	26	25	19	29	17	8.1	21	17	24	24			
	Copper, Cu	mg/kg	0.5	110		6000	13	13	15	16	14	13	8	5.8	20	16	21	21			
	Lead, Pb	mg/kg	1	1,100		300	13	17	21	24	20	24	23	13	13	23	23	22			
	Nickel, Ni	mg/kg	0.5	35		400	16	9.4	15	19	14	15	9.5	4.5	19	13	18	18			
	Zinc, Zn	mg/kg	2	260		7400	47	52	41	63	62	43	30	23	53	54	54	54			
	Mercury	mg/kg	0.05			40	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
PAHs (Polynuclear Aromatic Hydrocarbons) in Soil	Naphthalene	mg/kg	0.1	170	NL / NL / NL		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<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	<0.1	<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	<0.1	<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	<0.1	<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	<0.1	<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	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
	Fluoranthene	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
	Pyrene	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<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	<0.1	<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	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
	Benzo(a)pyrene	mg/kg	0.1	0.7			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
	Dibenzo(a,h)anthracene	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
	Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2			3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
	Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3			3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			
	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2			3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
	Total PAH (18)	mg/kg	0.8			300	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8			

P23052 - Detailed Site Investigation, Block 4 Section 109, Amaroo, ACT
Appendix B Table 1: Soil Analytical Results

Method_Type	ChemName	Units	EQL	ASC NEPM (2013) EIL/ESL Urban Residential and Public Open Space	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0- 2.0m/2.0-4.0m	ASC NEPM (2013) HIL A	Sample Name	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6	TP115 0.0-0.1	QC1						
							Depth (m)	1.0-1.1	0.0-0.1	0.5-0.6	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6	
							Sample Date	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023
							Sample Type	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ
BTEX + VOC	Benzene	mg/kg	0.1	65	0.7 / 1 / 2 / 3		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1						
	Toluene	mg/kg	0.1	105	480 / NL / NL		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1						
	Ethylbenzene	mg/kg	0.1	125	NL / NL / NL		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.2	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1						
	Total Xylenes	mg/kg	0.3	45	110 / 310 / NL		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<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	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6						
	Benzene (FO)	mg/kg	20				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1						
	TRH C6-C9	mg/kg	0.1				<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20						
	TRH C6-C10	mg/kg	25				<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25						
	TRH C6-C10 minus BTEX (F1)	mg/kg	25	180	50 / 65 / 100		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25						
TRH (Total Recoverable Hydrocarbons) in Soil	TRH C10-C14	mg/kg	20				<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20						
	TRH C15-C28	mg/kg	45				<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45						
	TRH C29-C36	mg/kg	45				<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45						
	TRH C37-C40	mg/kg	100				<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100						
	TRH >C10-C16	mg/kg	25				<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25						
	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	120	280 / NL / NL		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25						
	TRH >C16-C34 (F3)	mg/kg	90	1300			<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90						
	TRH >C34-C40 (F4)	mg/kg	120	5600			<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120						
	TRH C10-C36 Total	mg/kg	110				<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110						
	TRH >C10-C40 Total (F bands)	mg/kg	210				<210	<210	<210	<210	<210	<210	<210	<210	<210	<210	<210	<210						
PCBs in Soil	Arochlor 1016	mg/kg	0.2				<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7						
	Arochlor 1221	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Arochlor 1232	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Arochlor 1242	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Arochlor 1248	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Arochlor 1254	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Arochlor 1260	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Arochlor 1262	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Arochlor 1268	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
	Total PCBs (Arochlors)	mg/kg	1			1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
Speciated Phenols	Phenol	mg/kg	0.5			3000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2-methyl phenol (o-cresol)	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	3/4-methyl phenol (m/p-cresol)	mg/kg	1				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1						
	Total Cresol	mg/kg	1.5			400	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5						
	2-chlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2,4-dimethylphenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2,6-dichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2,4-dichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2,4,6-trichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2-nitrophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	4-nitrophenol	mg/kg	1				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1						
	2,4,5-trichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2,3,4,6,2,3,5,6-tetrachlorophenol	mg/kg	1				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1						
	Pentachlorophenol	mg/kg	0.5			100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
	2,4-dinitrophenol	mg/kg	2				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2						
	4-chloro-3-methylphenol	mg/kg	2				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2						

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Appendix B Table 1: Soil Analytical Results

Method_Type	ChemName	Units	EQL	ASC NEPM (2013) EIL/ESL Urban Residential and Public Open Space	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0-2.0m/2.0-4.0m	ASC NEPM (2013) HIL A	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6	TP115 0.0-0.1	QC1
Depth (m)	Sample Date	Sample Type					1.0-1.1	0.0-0.1	0.5-0.6	0.5-0.6	0.0-0.1	0.5-0.6	0.0-0.1	0.0-0.1	0.5-0.6	0.0-0.1	0.5-0.6
Sample Date	Sample Type						26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023
Sample Type							In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	In-situ
Organochlorine Pesticides	Hexachlorobenzene (HCB)	mg/kg	0.1			10	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Lindane (gamma BHC)	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<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	<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	<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	<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	<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	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Alpha Chlordane	mg/kg	0.1			50	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<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	<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	<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	<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	<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	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	p,p'-DDT	mg/kg	0.1	180			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1			270	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Endrin aldehyde	mg/kg	0.1			10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Methoxychlor	mg/kg	0.1			300	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Mirex	mg/kg	0.1			10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	DDD+DDE+DDT	mg/kg	0.6			240	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Organophosphorus Pesticides	Dichlorvos	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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	<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	<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	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2			160	<0.2	<0.2	<0.2	<0.2	<0.2	<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	<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	<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	<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	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Asbestos	Asbestos Detected	No unit	0				No	No	No	No	No	No	No	No	No	No	N.A.
	Estimated Fibres	%w/w	0.01				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	N.A.

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Appendix B Table 2: RPD Results

Method_Type	ChemName	Units	EQL	Sample Name	TP109 0.5-0.6	QC1	RPD	QC2	RPD
				Depth (m)	0.5-0.6	0.5-0.6		0.5-0.6	
				Sampled Date	26/04/2023	26/04/2023		26/04/2023	
				Sample Type	In-situ	In-situ		In-situ	
Heavy Metals in Soil	Arsenic, As	mg/kg	1	15	15	0%	16	6%	
	Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0%	<0.4	0%	
	Chromium, Cr	mg/kg	0.5	25	24	4%	22	13%	
	Copper, Cu	mg/kg	0.5	16	21	27%	22	32%	
	Lead, Pb	mg/kg	1	24	22	9%	19	23%	
	Nickel, Ni	mg/kg	0.5	19	18	5%	17	11%	
	Zinc, Zn	mg/kg	2	63	54	15%	48	27%	
	Mercury	mg/kg	0.05	<0.05	<0.05	0%	<0.1	0%	
OCP (Organochlorine Pesticides) in Soil	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Alpha BHC	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Heptachlor	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Aldrin	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Beta BHC	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Delta BHC	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	o,p'-DDE	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
	Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	p,p'-DDE	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Dieldrin	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
	Endrin	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
	o,p'-DDD	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	o,p'-DDT	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
	p,p'-DDD	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	p,p'-DDT	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Methoxychlor	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Endrin ketone	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Isodrin	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Mirex	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	DDD+DDE+DDT	mg/kg	1	<0.3	<0.3	0%	N.A.	N.A.	
	OPP (Organophosphorus Pesticides) in Soil	Dichlorvos	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
		Dimethoate	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
Diazinon (Dimpylate)		mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.	
Fenitrothion		mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
Malathion		mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
Chlorpyrifos (Chlorpyrifos Ethyl)		mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
Parathion-ethyl (Parathion)		mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
Bromophos Ethyl		mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
Methidathion		mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.	
Ethion		mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
Azinphos-methyl (Guthion)		mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.	
Total OP Pesticides		mg/kg	1.7	<1.7	N.A.	-	N.A.	N.A.	
PAHs (Polynuclear Aromatic Hydrocarbons) in Soil		Naphthalene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%
	2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0%	N.A.	N.A.	
	Acenaphthylene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Acenaphthene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Fluorene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Phenanthrene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Anthracene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Fluoranthene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Pyrene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Benzo[a]anthracene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Chrysene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Benzo[b]fluoranthene	mg/kg	0.1	<0.1	<0.1	0%	<0.2	0%	
	Benzo[k]fluoranthene	mg/kg	0.1	<0.1	<0.1	0%	<0.2	0%	
	Benzo[a]pyrene	mg/kg	0.1	<0.1	<0.1	0%	<0.05	0%	
	Indeno[1,2,3-cd]pyrene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Dibenzo[a,h]anthracene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Benzo[ghi]perylene	mg/kg	0.1	<0.1	<0.1	0%	<0.1	0%	
	Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	0%	N.A.	N.A.	
	Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	0%	N.A.	N.A.	
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	0%	N.A.	N.A.		
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	0%	<0.05	0%		

P23052 - Detailed Site Investigation, Block 4 Section 109, Amaroo, ACT
Appendix B Table 2: RPD Results

Method_Type	ChemName	Units	EQL	Sample Name	QC1	RPD	QC2	RPD
				TP109 0.5-0.6	0.5-0.6		0.5-0.6	
				Depth (m)	0.5-0.6	0.5-0.6	0.5-0.6	
				Sample Date	26/04/2023	26/04/2023	26/04/2023	
Sample Type	In-situ	In-situ	In-situ					
PCBs in Soil	Arochlor 1016	mg/kg	0.2	<1.7	<1.7	0%	N.A.	N.A.
	Arochlor 1221	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Arochlor 1232	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Arochlor 1242	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Arochlor 1248	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Arochlor 1254	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Arochlor 1260	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Arochlor 1262	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Arochlor 1268	mg/kg	0.2	<0.2	<0.2	0%	N.A.	N.A.
	Total PCBs (Arochlors)	mg/kg	1	<0.2	<0.2	0%	N.A.	N.A.
TRH (Total Recoverable Hydrocarbons) in Soil	TRH C10-C14	mg/kg	20	<20	<20	0%	<50	0%
	TRH C15-C28	mg/kg	45	<45	<45	0%	<100	0%
	TRH C29-C36	mg/kg	45	<45	<45	0%	<100	0%
	TRH C37-C40	mg/kg	100	<100	<100	0%	N.A.	N.A.
	TRH >C10-C16	mg/kg	25	<25	<25	0%	<50	0%
	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	0%	<50	0%
	TRH >C16-C34 (F3)	mg/kg	90	<90	<90	0%	<100	0%
	TRH >C34-C40 (F4)	mg/kg	120	<120	<120	0%	<100	0%
	TRH C10-C36 Total	mg/kg	110	<110	<110	0%	<50	0%
	TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	0%	<50	0%
BTEX + VOC	Benzene	mg/kg	0.1	<0.1	<0.1	0%	<0.2	0%
	Toluene	mg/kg	0.1	<0.1	<0.1	0%	<0.5	0%
	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	0%	<1	0%
	m/p-xylene	mg/kg	0.2	<0.2	<0.2	0%	<2	0%
	o-xylene	mg/kg	0.1	<0.1	<0.1	0%	<1	0%
	Total Xylenes	mg/kg	0.1	<0.3	<0.3	0%	<1	0%
	Total BTEX	mg/kg	0.3	<0.6	<0.6	0%	N.A.	N.A.
	Benzene (F0)	mg/kg	0.6	<0.1	<0.1	0%	<0.2	0%
	TRH C6-C9	mg/kg	0.1	<20	<20	0%	<25	0%
	TRH C6-C10	mg/kg	20	<25	<25	0%	<25	0%
Speciated Phenols in Soil	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	0%	<25	0%
	Phenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	0%	N.A.	N.A.
	Total Cresol	mg/kg	1.5	<1.5	<1.5	0%	N.A.	N.A.
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	2-nitrophenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	4-nitrophenol	mg/kg	1	<1	<1	0%	N.A.	N.A.
	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	0%	N.A.	N.A.
	Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	0%	N.A.	N.A.
2,4-dinitrophenol	mg/kg	2	<2	<2	0%	N.A.	N.A.	
4-chloro-3-methylphenol	mg/kg	2	<2	<2	0%	N.A.	N.A.	
Asbestos in soil	Asbestos Detected	No unit	0	No	N.A.	N.A.	N.A.	N.A.
	Estimated Fibres	%w/w	0.01	<0.01	N.A.	N.A.	N.A.	N.A.

Red text denotes RPD > 5x above detection limit and > 30% (i.e. failed RPD)

Laboratory Reports and Chain of Custody Documentation

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Project **P23052 - Amaroo Tennis Club**
 Order Number **P23052**
 Samples 17

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SGS Reference **SE246681 R0**
 Date Received 1/5/2023
 Date Reported 8/5/2023

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.

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

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam

SIGNATORIES



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 Chemist



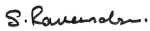
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VOC's in Soil [AN433] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
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
Naphthalene (VOC)*	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

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
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
Naphthalene (VOC)*	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

PARAMETER	UOM	LOR	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
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
Naphthalene (VOC)*	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

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL	SOIL
			26/4/2023 SE246681.016	26/4/2023 SE246681.017
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
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	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
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	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
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	TP115 0.0-0.1	QC1
			SOIL	SOIL
			-	-
			26/4/2023 SE246681.016	26/4/2023 SE246681.017
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20
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: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	59
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	60
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	110
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	120
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
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	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<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

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL - 26/4/2023 SE246681.016	SOIL - 26/4/2023 SE246681.017
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL	SOIL
			26/4/2023 SE246681.016	26/4/2023 SE246681.017
Naphthalene	mg/kg	0.1	<0.1	<0.1
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	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

Speciated Phenols in Soil [AN420] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2	<2

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2	<2

Speciated Phenols in Soil [AN420] Tested: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2	<2

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL	SOIL
			26/4/2023 SE246681.016	26/4/2023 SE246681.017
Phenol	mg/kg	0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2

OC Pesticides in Soil [AN420] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
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 (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
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 (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL - 26/4/2023 SE246681.016	SOIL - 26/4/2023 SE246681.017
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
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
Endrin	mg/kg	0.2	<0.2	<0.2
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	<0.1	<0.1
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

OP Pesticides in Soil [AN420] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
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	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
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

OP Pesticides in Soil [AN420] Tested: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL - 26/4/2023 SE246681.016	SOIL - 26/4/2023 SE246681.017
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
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	<0.2	<0.2
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	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
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	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
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

PCBs in Soil [AN420] Tested: 1/5/2023 (continued)

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL - 26/4/2023 SE246681.016	SOIL - 26/4/2023 SE246681.017
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	<0.2	<0.2
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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 1/5/2023

PARAMETER	UOM	LOR	TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023 SE246681.001	26/4/2023 SE246681.002	26/4/2023 SE246681.003	26/4/2023 SE246681.004	26/4/2023 SE246681.005
Arsenic, As	mg/kg	1	12	15	10	16	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	19	19	19	22	13
Copper, Cu	mg/kg	0.5	21	20	18	18	15
Lead, Pb	mg/kg	1	21	23	22	21	19
Nickel, Ni	mg/kg	0.5	15	13	14	18	11
Zinc, Zn	mg/kg	2	62	66	57	64	59

PARAMETER	UOM	LOR	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008	26/4/2023 SE246681.009	26/4/2023 SE246681.010
Arsenic, As	mg/kg	1	23	6	6	13	15
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	29	24	11	26	25
Copper, Cu	mg/kg	0.5	27	13	13	15	16
Lead, Pb	mg/kg	1	26	13	17	21	24
Nickel, Ni	mg/kg	0.5	28	16	9.4	15	19
Zinc, Zn	mg/kg	2	86	47	52	41	63

PARAMETER	UOM	LOR	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013	26/4/2023 SE246681.014	26/4/2023 SE246681.015
Arsenic, As	mg/kg	1	12	21	8	4	10
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	19	29	17	8.1	21
Copper, Cu	mg/kg	0.5	14	13	8.0	5.8	20
Lead, Pb	mg/kg	1	20	24	23	13	13
Nickel, Ni	mg/kg	0.5	14	15	9.5	4.5	19
Zinc, Zn	mg/kg	2	62	43	30	23	53

PARAMETER	UOM	LOR	TP115 0.0-0.1	QC1
			SOIL	SOIL
			-	-
			26/4/2023 SE246681.016	26/4/2023 SE246681.017
Arsenic, As	mg/kg	1	10	15
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	17	24
Copper, Cu	mg/kg	0.5	16	21
Lead, Pb	mg/kg	1	23	22
Nickel, Ni	mg/kg	0.5	13	18
Zinc, Zn	mg/kg	2	54	54

Mercury in Soil [AN312] Tested: 1/5/2023

			TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023	26/4/2023	26/4/2023	26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.001	SE246681.002	SE246681.003	SE246681.004	SE246681.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023	26/4/2023	26/4/2023	26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.006	SE246681.007	SE246681.008	SE246681.009	SE246681.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023	26/4/2023	26/4/2023	26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.011	SE246681.012	SE246681.013	SE246681.014	SE246681.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			TP115 0.0-0.1	QC1
			SOIL	SOIL
			-	-
			26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.016	SE246681.017
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 1/5/2023

			TP101 0.0-0.1	TP102 0.5-0.6	TP103 1.0-1.1	TP104 0.5-0.6	TP105 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023	26/4/2023	26/4/2023	26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.001	SE246681.002	SE246681.003	SE246681.004	SE246681.005
% Moisture	%w/w	1	26.5	18.6	16.7	5.4	22.2

			TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1	TP108 0.5-0.6	TP109 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023	26/4/2023	26/4/2023	26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.006	SE246681.007	SE246681.008	SE246681.009	SE246681.010
% Moisture	%w/w	1	12.6	10.9	24.8	8.3	11.8

			TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1	TP113 0.0-0.1	TP114 0.5-0.6
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/4/2023	26/4/2023	26/4/2023	26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.011	SE246681.012	SE246681.013	SE246681.014	SE246681.015
% Moisture	%w/w	1	18.2	5.0	11.6	15.7	10.1

			TP115 0.0-0.1	QC1
			SOIL	SOIL
			-	-
			26/4/2023	26/4/2023
PARAMETER	UOM	LOR	SE246681.016	SE246681.017
% Moisture	%w/w	1	17.4	12.3

Fibre Identification in soil [AS4964/AN602] Tested: 5/5/2023

PARAMETER	UOM	LOR	TP104 0.5-0.6	TP105 0.0-0.1	TP105 2.0-2.1	TP106 1.0-1.1	TP107 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.004	26/4/2023 SE246681.005	26/4/2023 SE246681.006	26/4/2023 SE246681.007	26/4/2023 SE246681.008
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	TP108 0.5-0.6	TP109 0.5-0.6	TP110 0.0-0.1	TP111 0.5-0.6	TP112 0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/4/2023 SE246681.009	26/4/2023 SE246681.010	26/4/2023 SE246681.011	26/4/2023 SE246681.012	26/4/2023 SE246681.013
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	TP113 0.0-0.1	TP114 0.5-0.6	TP115 0.0-0.1
			SOIL	SOIL	SOIL
			26/4/2023 SE246681.014	26/4/2023 SE246681.015	26/4/2023 SE246681.016
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01

METHOD

METHODOLOGY SUMMARY

- AN002** The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
- AN040/AN320** A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
- AN040** A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
- AN312** Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
- AN403** Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
- AN403** Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
- AN403** The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
- AN420** (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
- AN420** SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
- AN433** VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
- AN602/AS4964** Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
- AN602/AS4964** Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
- AN602/AS4964** AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602/AS4964

The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%/w/w) where AN602 section 4.5 of this method has been followed, and if-

- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);
- (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and
- (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

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

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

If reported, measurement uncertainty follow the ± 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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Project **P23052 - Amaroo Tennis Club**
 Order Number **P23052**
 Samples 17

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SGS Reference **SE246681 R0**
 Date Received 01 May 2023
 Date Reported 08 May 2023

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:

Surrogate	Speciated Phenols in Soil	1 item
Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	3 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	TRH (Total Recoverable Hydrocarbons) in Soil	4 items

SAMPLE SUMMARY

Sample counts by matrix	17 Soil	Type of documentation received	COC
Date documentation received	1/5/2023	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	16.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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

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

Fibre Identification in soil

Method: ME-(AU)-JENVJAS4964/AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP104 0.5-0.6	SE246681.004	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP105 0.0-0.1	SE246681.005	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP105 2.0-2.1	SE246681.006	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP106 1.0-1.1	SE246681.007	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP107 0.0-0.1	SE246681.008	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP108 0.5-0.6	SE246681.009	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP109 0.5-0.6	SE246681.010	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP110 0.0-0.1	SE246681.011	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP111 0.5-0.6	SE246681.012	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP112 0.0-0.1	SE246681.013	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP113 0.0-0.1	SE246681.014	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP114 0.5-0.6	SE246681.015	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023
TP115 0.0-0.1	SE246681.016	LB278664	26 Apr 2023	01 May 2023	25 Apr 2024	05 May 2023	25 Apr 2024	08 May 2023

Mercury in Soil

Method: ME-(AU)-JENVJAN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP102 0.5-0.6	SE246681.002	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP103 1.0-1.1	SE246681.003	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP104 0.5-0.6	SE246681.004	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP105 0.0-0.1	SE246681.005	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP105 2.0-2.1	SE246681.006	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP106 1.0-1.1	SE246681.007	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP107 0.0-0.1	SE246681.008	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP108 0.5-0.6	SE246681.009	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP109 0.5-0.6	SE246681.010	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP110 0.0-0.1	SE246681.011	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP111 0.5-0.6	SE246681.012	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP112 0.0-0.1	SE246681.013	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP113 0.0-0.1	SE246681.014	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP114 0.5-0.6	SE246681.015	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
TP115 0.0-0.1	SE246681.016	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023
QC1	SE246681.017	LB278213	26 Apr 2023	01 May 2023	24 May 2023	01 May 2023	24 May 2023	03 May 2023

Moisture Content

Method: ME-(AU)-JENVJAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP102 0.5-0.6	SE246681.002	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP103 1.0-1.1	SE246681.003	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP104 0.5-0.6	SE246681.004	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP105 0.0-0.1	SE246681.005	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP105 2.0-2.1	SE246681.006	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP106 1.0-1.1	SE246681.007	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP107 0.0-0.1	SE246681.008	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP108 0.5-0.6	SE246681.009	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP109 0.5-0.6	SE246681.010	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP110 0.0-0.1	SE246681.011	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP111 0.5-0.6	SE246681.012	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP112 0.0-0.1	SE246681.013	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP113 0.0-0.1	SE246681.014	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP114 0.5-0.6	SE246681.015	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
TP115 0.0-0.1	SE246681.016	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023
QC1	SE246681.017	LB278203	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	06 May 2023	03 May 2023

OC Pesticides in Soil

Method: ME-(AU)-JENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP102 0.5-0.6	SE246681.002	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP103 1.0-1.1	SE246681.003	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP104 0.5-0.6	SE246681.004	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP105 0.0-0.1	SE246681.005	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023

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

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

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

OC Pesticides in Soil (continued)

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP105 2.0-2.1	SE246681.006	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP106 1.0-1.1	SE246681.007	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP107 0.0-0.1	SE246681.008	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP108 0.5-0.6	SE246681.009	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP109 0.5-0.6	SE246681.010	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP110 0.0-0.1	SE246681.011	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP111 0.5-0.6	SE246681.012	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP112 0.0-0.1	SE246681.013	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP113 0.0-0.1	SE246681.014	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP114 0.5-0.6	SE246681.015	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP115 0.0-0.1	SE246681.016	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
QC1	SE246681.017	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023

OP Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP102 0.5-0.6	SE246681.002	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP103 1.0-1.1	SE246681.003	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP104 0.5-0.6	SE246681.004	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP105 0.0-0.1	SE246681.005	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP105 2.0-2.1	SE246681.006	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP106 1.0-1.1	SE246681.007	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP107 0.0-0.1	SE246681.008	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP108 0.5-0.6	SE246681.009	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP109 0.5-0.6	SE246681.010	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP110 0.0-0.1	SE246681.011	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP111 0.5-0.6	SE246681.012	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP112 0.0-0.1	SE246681.013	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP113 0.0-0.1	SE246681.014	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP114 0.5-0.6	SE246681.015	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP115 0.0-0.1	SE246681.016	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
QC1	SE246681.017	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP102 0.5-0.6	SE246681.002	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP103 1.0-1.1	SE246681.003	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP104 0.5-0.6	SE246681.004	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP105 0.0-0.1	SE246681.005	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP105 2.0-2.1	SE246681.006	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP106 1.0-1.1	SE246681.007	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP107 0.0-0.1	SE246681.008	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP108 0.5-0.6	SE246681.009	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP109 0.5-0.6	SE246681.010	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP110 0.0-0.1	SE246681.011	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP111 0.5-0.6	SE246681.012	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP112 0.0-0.1	SE246681.013	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP113 0.0-0.1	SE246681.014	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP114 0.5-0.6	SE246681.015	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
TP115 0.0-0.1	SE246681.016	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023
QC1	SE246681.017	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	04 May 2023

PCBs in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP102 0.5-0.6	SE246681.002	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP103 1.0-1.1	SE246681.003	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP104 0.5-0.6	SE246681.004	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP105 0.0-0.1	SE246681.005	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP105 2.0-2.1	SE246681.006	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023

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

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

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

PCBs in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP106 1.0-1.1	SE246681.007	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP107 0.0-0.1	SE246681.008	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP108 0.5-0.6	SE246681.009	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP109 0.5-0.6	SE246681.010	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP110 0.0-0.1	SE246681.011	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP111 0.5-0.6	SE246681.012	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP112 0.0-0.1	SE246681.013	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP113 0.0-0.1	SE246681.014	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP114 0.5-0.6	SE246681.015	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP115 0.0-0.1	SE246681.016	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
QC1	SE246681.017	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023

Speciated Phenols in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP102 0.5-0.6	SE246681.002	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP103 1.0-1.1	SE246681.003	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP104 0.5-0.6	SE246681.004	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP105 0.0-0.1	SE246681.005	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP105 2.0-2.1	SE246681.006	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP106 1.0-1.1	SE246681.007	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP107 0.0-0.1	SE246681.008	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP108 0.5-0.6	SE246681.009	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP109 0.5-0.6	SE246681.010	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP110 0.0-0.1	SE246681.011	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP111 0.5-0.6	SE246681.012	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP112 0.0-0.1	SE246681.013	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP113 0.0-0.1	SE246681.014	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP114 0.5-0.6	SE246681.015	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
TP115 0.0-0.1	SE246681.016	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023
QC1	SE246681.017	LB278197	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	03 May 2023

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
TP101 0.0-0.1	SE246681.001	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP102 0.5-0.6	SE246681.002	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP103 1.0-1.1	SE246681.003	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP104 0.5-0.6	SE246681.004	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP105 0.0-0.1	SE246681.005	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP105 2.0-2.1	SE246681.006	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP106 1.0-1.1	SE246681.007	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP107 0.0-0.1	SE246681.008	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP108 0.5-0.6	SE246681.009	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP109 0.5-0.6	SE246681.010	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP110 0.0-0.1	SE246681.011	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP111 0.5-0.6	SE246681.012	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP112 0.0-0.1	SE246681.013	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP113 0.0-0.1	SE246681.014	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP114 0.5-0.6	SE246681.015	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
TP115 0.0-0.1	SE246681.016	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023
QC1	SE246681.017	LB278210	26 Apr 2023	01 May 2023	23 Oct 2023	01 May 2023	23 Oct 2023	03 May 2023

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
TP101 0.0-0.1	SE246681.001	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP102 0.5-0.6	SE246681.002	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP103 1.0-1.1	SE246681.003	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP104 0.5-0.6	SE246681.004	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP105 0.0-0.1	SE246681.005	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP105 2.0-2.1	SE246681.006	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP106 1.0-1.1	SE246681.007	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP107 0.0-0.1	SE246681.008	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP108 0.5-0.6	SE246681.009	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP109 0.5-0.6	SE246681.010	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP110 0.0-0.1	SE246681.011	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP111 0.5-0.6	SE246681.012	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP112 0.0-0.1	SE246681.013	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP113 0.0-0.1	SE246681.014	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP114 0.5-0.6	SE246681.015	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
TP115 0.0-0.1	SE246681.016	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023
QC1	SE246681.017	LB278199	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 Jun 2023	08 May 2023

VOC's in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP102 0.5-0.6	SE246681.002	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP103 1.0-1.1	SE246681.003	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP104 0.5-0.6	SE246681.004	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP105 0.0-0.1	SE246681.005	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP105 2.0-2.1	SE246681.006	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP106 1.0-1.1	SE246681.007	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP107 0.0-0.1	SE246681.008	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP108 0.5-0.6	SE246681.009	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP109 0.5-0.6	SE246681.010	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP110 0.0-0.1	SE246681.011	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP111 0.5-0.6	SE246681.012	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP112 0.0-0.1	SE246681.013	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP113 0.0-0.1	SE246681.014	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP114 0.5-0.6	SE246681.015	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP115 0.0-0.1	SE246681.016	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
QC1	SE246681.017	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP101 0.0-0.1	SE246681.001	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP102 0.5-0.6	SE246681.002	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP103 1.0-1.1	SE246681.003	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP104 0.5-0.6	SE246681.004	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP105 0.0-0.1	SE246681.005	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP105 2.0-2.1	SE246681.006	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP106 1.0-1.1	SE246681.007	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP107 0.0-0.1	SE246681.008	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP108 0.5-0.6	SE246681.009	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP109 0.5-0.6	SE246681.010	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP110 0.0-0.1	SE246681.011	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP111 0.5-0.6	SE246681.012	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP112 0.0-0.1	SE246681.013	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP113 0.0-0.1	SE246681.014	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP114 0.5-0.6	SE246681.015	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
TP115 0.0-0.1	SE246681.016	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023
QC1	SE246681.017	LB278200	26 Apr 2023	01 May 2023	10 May 2023	01 May 2023	10 May 2023	05 May 2023

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

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

OC Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	76
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	77
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	73
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	73
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	75
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	74
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	73
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	75
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	75
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	73
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	77
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	99
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	75
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	80
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	81
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	85
	QC1	SE246681.017	%	60 - 130%	90

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	91
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	92
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	92
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	92
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	88
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	86
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	88
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	91
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	87
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	88
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	90
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	88
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	82
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	87
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	87
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	85
	QC1	SE246681.017	%	60 - 130%	88
d14-p-terphenyl (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	95
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	92
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	91
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	92
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	92
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	97
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	91
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	99
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	91
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	87
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	92
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	86
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	91
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	93
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	90
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	90
	QC1	SE246681.017	%	60 - 130%	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP101 0.0-0.1	SE246681.001	%	70 - 130%	91
	TP102 0.5-0.6	SE246681.002	%	70 - 130%	92
	TP103 1.0-1.1	SE246681.003	%	70 - 130%	92
	TP104 0.5-0.6	SE246681.004	%	70 - 130%	92
	TP105 0.0-0.1	SE246681.005	%	70 - 130%	88

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
2-fluorobiphenyl (Surrogate)	TP105 2.0-2.1	SE246681.006	%	70 - 130%	86	
	TP106 1.0-1.1	SE246681.007	%	70 - 130%	88	
	TP107 0.0-0.1	SE246681.008	%	70 - 130%	91	
	TP108 0.5-0.6	SE246681.009	%	70 - 130%	87	
	TP109 0.5-0.6	SE246681.010	%	70 - 130%	88	
	TP110 0.0-0.1	SE246681.011	%	70 - 130%	90	
	TP111 0.5-0.6	SE246681.012	%	70 - 130%	88	
	TP112 0.0-0.1	SE246681.013	%	70 - 130%	82	
	TP113 0.0-0.1	SE246681.014	%	70 - 130%	87	
	TP114 0.5-0.6	SE246681.015	%	70 - 130%	87	
	TP115 0.0-0.1	SE246681.016	%	70 - 130%	85	
	QC1	SE246681.017	%	70 - 130%	88	
	d14-p-terphenyl (Surrogate)	TP101 0.0-0.1	SE246681.001	%	70 - 130%	95
		TP102 0.5-0.6	SE246681.002	%	70 - 130%	92
		TP103 1.0-1.1	SE246681.003	%	70 - 130%	91
		TP104 0.5-0.6	SE246681.004	%	70 - 130%	92
		TP105 0.0-0.1	SE246681.005	%	70 - 130%	92
TP105 2.0-2.1		SE246681.006	%	70 - 130%	97	
TP106 1.0-1.1		SE246681.007	%	70 - 130%	91	
TP107 0.0-0.1		SE246681.008	%	70 - 130%	99	
TP108 0.5-0.6		SE246681.009	%	70 - 130%	91	
TP109 0.5-0.6		SE246681.010	%	70 - 130%	87	
TP110 0.0-0.1		SE246681.011	%	70 - 130%	92	
TP111 0.5-0.6		SE246681.012	%	70 - 130%	86	
TP112 0.0-0.1		SE246681.013	%	70 - 130%	91	
TP113 0.0-0.1		SE246681.014	%	70 - 130%	93	
TP114 0.5-0.6		SE246681.015	%	70 - 130%	90	
TP115 0.0-0.1		SE246681.016	%	70 - 130%	90	
QC1		SE246681.017	%	70 - 130%	90	
d5-nitrobenzene (Surrogate)	TP101 0.0-0.1	SE246681.001	%	70 - 130%	97	
	TP102 0.5-0.6	SE246681.002	%	70 - 130%	96	
	TP103 1.0-1.1	SE246681.003	%	70 - 130%	99	
	TP104 0.5-0.6	SE246681.004	%	70 - 130%	94	
	TP105 0.0-0.1	SE246681.005	%	70 - 130%	99	
	TP105 2.0-2.1	SE246681.006	%	70 - 130%	91	
	TP106 1.0-1.1	SE246681.007	%	70 - 130%	97	
	TP107 0.0-0.1	SE246681.008	%	70 - 130%	102	
	TP108 0.5-0.6	SE246681.009	%	70 - 130%	93	
	TP109 0.5-0.6	SE246681.010	%	70 - 130%	90	
	TP110 0.0-0.1	SE246681.011	%	70 - 130%	97	
	TP111 0.5-0.6	SE246681.012	%	70 - 130%	89	
	TP112 0.0-0.1	SE246681.013	%	70 - 130%	94	
	TP113 0.0-0.1	SE246681.014	%	70 - 130%	95	
	TP114 0.5-0.6	SE246681.015	%	70 - 130%	97	
	TP115 0.0-0.1	SE246681.016	%	70 - 130%	93	
	QC1	SE246681.017	%	70 - 130%	94	

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	73
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	74
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	70
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	71
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	73
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	70
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	73
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	72
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	72
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	73
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	74
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	95

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

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

PCBs in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	TP112 0.0-0.1	SE246681.013	%	60 - 130%	71
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	77
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	77
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	85
	QC1	SE246681.017	%	60 - 130%	90

Speciated Phenols in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	TP101 0.0-0.1	SE246681.001	%	70 - 130%	123
	TP102 0.5-0.6	SE246681.002	%	70 - 130%	129
	TP103 1.0-1.1	SE246681.003	%	70 - 130%	126
	TP104 0.5-0.6	SE246681.004	%	70 - 130%	125
	TP105 0.0-0.1	SE246681.005	%	70 - 130%	103
	TP105 2.0-2.1	SE246681.006	%	70 - 130%	85
	TP106 1.0-1.1	SE246681.007	%	70 - 130%	124
	TP107 0.0-0.1	SE246681.008	%	70 - 130%	129
	TP108 0.5-0.6	SE246681.009	%	70 - 130%	118
	TP109 0.5-0.6	SE246681.010	%	70 - 130%	127
	TP110 0.0-0.1	SE246681.011	%	70 - 130%	112
	TP111 0.5-0.6	SE246681.012	%	70 - 130%	102
	TP112 0.0-0.1	SE246681.013	%	70 - 130%	107
	TP113 0.0-0.1	SE246681.014	%	70 - 130%	58 ☹
d5-phenol (Surrogate)	TP101 0.0-0.1	SE246681.001	%	50 - 130%	105
	TP102 0.5-0.6	SE246681.002	%	50 - 130%	113
	TP103 1.0-1.1	SE246681.003	%	50 - 130%	112
	TP104 0.5-0.6	SE246681.004	%	50 - 130%	106
	TP105 0.0-0.1	SE246681.005	%	50 - 130%	98
	TP105 2.0-2.1	SE246681.006	%	50 - 130%	57
	TP106 1.0-1.1	SE246681.007	%	50 - 130%	110
	TP107 0.0-0.1	SE246681.008	%	50 - 130%	90
	TP108 0.5-0.6	SE246681.009	%	50 - 130%	94
	TP109 0.5-0.6	SE246681.010	%	50 - 130%	112
	TP110 0.0-0.1	SE246681.011	%	50 - 130%	91
	TP111 0.5-0.6	SE246681.012	%	50 - 130%	93
	TP112 0.0-0.1	SE246681.013	%	50 - 130%	88
	TP113 0.0-0.1	SE246681.014	%	50 - 130%	50
TP114 0.5-0.6	SE246681.015	%	50 - 130%	101	
TP115 0.0-0.1	SE246681.016	%	50 - 130%	97	
QC1	SE246681.017	%	50 - 130%	115	

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	99
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	98
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	88
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	96
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	94
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	98
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	86
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	89
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	92
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	90
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	88
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	92
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	81
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	81
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	82
TP115 0.0-0.1	SE246681.016	%	60 - 130%	86	
QC1	SE246681.017	%	60 - 130%	84	

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	86
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	84
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	80
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	95
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	83
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	91
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	82
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	77
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	87
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	89
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	85
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	95
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	81
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	80
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	88
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	88
	QC1	SE246681.017	%	60 - 130%	83
d8-toluene (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	98
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	94
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	89
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	96
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	88
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	96
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	91
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	86
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	93
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	91
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	91
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	96
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	87
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	89
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	94
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	91
	QC1	SE246681.017	%	60 - 130%	88

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	99
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	98
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	88
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	96
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	94
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	98
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	86
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	89
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	92
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	90
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	88
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	92
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	81
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	81
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	82
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	86
	QC1	SE246681.017	%	60 - 130%	84
d4-1,2-dichloroethane (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	86
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	84
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	80
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	95
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	83
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	91
TP106 1.0-1.1	SE246681.007	%	60 - 130%	82	

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TP107 0.0-0.1	SE246681.008	%	60 - 130%	77
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	87
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	89
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	85
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	95
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	81
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	80
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	88
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	88
	QC1	SE246681.017	%	60 - 130%	83
d8-toluene (Surrogate)	TP101 0.0-0.1	SE246681.001	%	60 - 130%	98
	TP102 0.5-0.6	SE246681.002	%	60 - 130%	94
	TP103 1.0-1.1	SE246681.003	%	60 - 130%	89
	TP104 0.5-0.6	SE246681.004	%	60 - 130%	96
	TP105 0.0-0.1	SE246681.005	%	60 - 130%	88
	TP105 2.0-2.1	SE246681.006	%	60 - 130%	96
	TP106 1.0-1.1	SE246681.007	%	60 - 130%	91
	TP107 0.0-0.1	SE246681.008	%	60 - 130%	86
	TP108 0.5-0.6	SE246681.009	%	60 - 130%	93
	TP109 0.5-0.6	SE246681.010	%	60 - 130%	91
	TP110 0.0-0.1	SE246681.011	%	60 - 130%	91
	TP111 0.5-0.6	SE246681.012	%	60 - 130%	96
	TP112 0.0-0.1	SE246681.013	%	60 - 130%	87
	TP113 0.0-0.1	SE246681.014	%	60 - 130%	89
	TP114 0.5-0.6	SE246681.015	%	60 - 130%	94
	TP115 0.0-0.1	SE246681.016	%	60 - 130%	91
	QC1	SE246681.017	%	60 - 130%	88

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

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

Mercury in Soil

Method: ME-(AU)-ENVJAN312

Sample Number	Parameter	Units	LOR	Result
LB278213.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB278199.001	Alpha BHC	mg/kg	0.1	<0.1
	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Lindane (gamma BHC)	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	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
	Endrin aldehyde	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	
Methoxychlor	mg/kg	0.1	<0.1	
Mirex	mg/kg	0.1	<0.1	
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	73

OP Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result	
LB278199.001	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	
	Bromophos Ethyl	mg/kg	0.2	<0.2	
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5	
	Dichlorvos	mg/kg	0.5	<0.5	
	Dimethoate	mg/kg	0.5	<0.5	
	Ethion	mg/kg	0.2	<0.2	
	Fenitrothion	mg/kg	0.2	<0.2	
	Malathion	mg/kg	0.2	<0.2	
	Methodathion	mg/kg	0.5	<0.5	
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	87
		d14-p-terphenyl (Surrogate)	%	-	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB278199.001	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

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
LB278199.001	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
Surrogates	d5-nitrobenzene (Surrogate)	%	-	128
	2-fluorobiphenyl (Surrogate)	%	-	87
	d14-p-terphenyl (Surrogate)	%	-	102

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB278199.001	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	TCMX (Surrogate)	%	-	97

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result	
LB278197.001	Phenol	mg/kg	0.5	<0.5	
	2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	
	3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	
	2-chlorophenol	mg/kg	0.5	<0.5	
	2,4-dimethylphenol	mg/kg	0.5	<0.5	
	2,6-dichlorophenol	mg/kg	0.5	<0.5	
	2,4-dichlorophenol	mg/kg	0.5	<0.5	
	4-chloro-3-methylphenol	mg/kg	2	<2	
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5	
	2-nitrophenol	mg/kg	0.5	<0.5	
	4-nitrophenol	mg/kg	1	<1	
	2,4,5-trichlorophenol	mg/kg	0.5	<0.5	
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	
	Pentachlorophenol	mg/kg	0.5	<0.5	
	2,4-dinitrophenol	mg/kg	2	<2	
	Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	123
		d5-phenol (Surrogate)	%	-	105

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

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

Sample Number	Parameter	Units	LOR	Result
LB278210.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB278199.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

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

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

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

VOC's in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	
LB278200.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
	Hydrocarbons	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)	%	-	119
		d8-toluene (Surrogate)	%	-	96
		Bromofluorobenzene (Surrogate)	%	-	110
	Totals	Total BTEX*	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB278200.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$
 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: $MAD = 100 \times SDL / Mean + LR$
 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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE246681.010	LB278213.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE246681.010	LB278203.011	% Moisture	%w/w	1	11.8	11.7	38	1
SE246716.003	LB278203.022	% Moisture	%w/w	1	21.1	21.7	35	3

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246681.010	LB278199.014	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0	
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0	
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0	
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0	
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0	
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0	
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0	
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0	
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0	
		o,p'-DDE*	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	
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0	
		o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	200	0	
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0	
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0	
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0	
		o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	200	0	
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0	
Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0			
Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0			
Mirex	mg/kg	0.1	<0.1	<0.1	200	0			
trans-Nonachlor	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			
SE246716.003	LB278199.025	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.11	0.11	30	2
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0	
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0	
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0	
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0	
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0	
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0	
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0	
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0	
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0	
		o,p'-DDE*	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	67	21	
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0	
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0	
		o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	200	0	
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0	

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$
 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: $MAD = 100 \times SDL / Mean + LR$
 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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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

OC Pesticides in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246716.003	LB278199.025	Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0	
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0	
		o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	200	0	
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0	
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0	
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0	
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0	
		trans-Nonachlor	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	-	0.15	0.14	30	1

OP Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246716.003	LB278199.025	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0	
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0	
		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0	
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0	
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0	
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0	
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0	
		Methidathion	mg/kg	0.5	<0.5	<0.5	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	10
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.6	30	10

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246716.003	LB278199.025	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	0.2	<0.1	104	82	
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0	
		Fluoranthene	mg/kg	0.1	0.3	<0.1	88	94 ⊕	
		Pyrene	mg/kg	0.1	0.3	<0.1	87	95 ⊕	
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	181	0	
		Chrysene	mg/kg	0.1	0.1	<0.1	174	1	
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	185	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	191	0	
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0	
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0	
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0	
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	200	0	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0	
		Total PAH (18)	mg/kg	0.8	0.9	<0.8	52	160 ⊕	
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	10
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.6	30	10

PCBs in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE246716.003	LB278199.025	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: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$
 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: $MAD = 100 \times SDL / Mean + LR$
 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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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

PCBs in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE246716.003	LB278199.025	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	TCMX (Surrogate)	mg/kg	-	0	0	30	1	

Speciated Phenols in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246681.010	LB278197.014	Phenol	mg/kg	0.5	<0.5	<0.5	200	0	
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	200	0	
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	200	0	
		Total Cresol	mg/kg	1.5	<1.5	<1.5	200	0	
		2-chlorophenol	mg/kg	0.5	<0.5	<0.5	200	0	
		2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	200	0	
		2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0	
		2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0	
		4-chloro-3-methylphenol	mg/kg	2	<2	<2	200	0	
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0	
		2-nitrophenol	mg/kg	0.5	<0.5	<0.5	200	0	
		4-nitrophenol	mg/kg	1	<1	<1	200	0	
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0	
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	200	0	
		Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	200	0	
		2,4-dinitrophenol	mg/kg	2	<2	<2	200	0	
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	6.3	6.2	30	3
			d5-phenol (Surrogate)	mg/kg	-	2.2	2.2	30	2
		SE246716.003	LB278197.025	Phenol	mg/kg	0.5	<0.5	<0.5	200
2-methyl phenol (o-cresol)	mg/kg			0.5	<0.5	<0.5	200	0	
3/4-methyl phenol (m/p-cresol)	mg/kg			1	<1	<1	200	0	
Total Cresol	mg/kg			1.5	<1.5	<1.5	200	0	
2-chlorophenol	mg/kg			0.5	<0.5	<0.5	200	0	
2,4-dimethylphenol	mg/kg			0.5	<0.5	<0.5	200	0	
2,6-dichlorophenol	mg/kg			0.5	<0.5	<0.5	200	0	
2,4-dichlorophenol	mg/kg			0.5	<0.5	<0.5	200	0	
4-chloro-3-methylphenol	mg/kg			2	<2	<2	200	0	
2,4,6-trichlorophenol	mg/kg			0.5	<0.5	<0.5	200	0	
2-nitrophenol	mg/kg			0.5	<0.5	<0.5	200	0	
4-nitrophenol	mg/kg			1	<1	<1	200	0	
2,4,5-trichlorophenol	mg/kg			0.5	<0.5	<0.5	200	0	
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg			1	<1	<1	200	0	
Pentachlorophenol	mg/kg			0.5	<0.5	<0.5	200	0	
2,4-dinitrophenol	mg/kg			2	<2	<2	200	0	
Surrogates	2,4,6-Tribromophenol (Surrogate)			mg/kg	-	6.1	6.0	30	0
	d5-phenol (Surrogate)			mg/kg	-	2.3	2.3	30	0

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE246681.010	LB278210.014	Arsenic, As	mg/kg	1	15	15	37	3
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	25	20	32	19
		Copper, Cu	mg/kg	0.5	16	20	33	22
		Nickel, Ni	mg/kg	0.5	19	19	33	2
		Lead, Pb	mg/kg	1	24	21	34	15
		Zinc, Zn	mg/kg	2	63	52	33	20

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN403

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$
 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: $MAD = 100 \times SDL / Mean + LR$
 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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-IENVJAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246681.010	LB278199.014	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
SE246716.003	LB278199.025	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	54	135	18	
		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

VOC's in Soil

Method: ME-(AU)-IENVJAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246681.010	LB278200.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.9	8.6	50	4
			d8-toluene (Surrogate)	mg/kg	-	9.1	9.0	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.9	50	1
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
Total Xylenes*	mg/kg		0.3	<0.3	<0.3	200	0		
SE246716.003	LB278200.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.6	11.4	50	1
			d8-toluene (Surrogate)	mg/kg	-	8.1	8.2	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.8	10.0	50	1
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
Total Xylenes*	mg/kg		0.3	<0.3	<0.3	200	0		

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-IENVJAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE246681.010	LB278200.014	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	-	8.9	8.6	30	4
			d8-toluene (Surrogate)	mg/kg	-	9.1	9.0	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.9	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		
SE246716.003	LB278200.025	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	-	11.6	11.4	30	1
			d8-toluene (Surrogate)	mg/kg	-	8.1	8.2	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.8	10.0	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		

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 %
LB278213.002	Mercury	mg/kg	0.05	0.17	0.2	80 - 120	86

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB278199.002	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	85
	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	82
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	84
	Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	89
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	82
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	92

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB278199.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	96	
	Diazinon (Dimpylate)	mg/kg	0.5	2.2	2	60 - 140	111	
	Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	89	
	Ethion	mg/kg	0.2	2.3	2	60 - 140	114	
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	99	

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB278199.002	Naphthalene	mg/kg	0.1	3.6	4	60 - 140	91	
	Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	89	
	Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	98	
	Phenanthrene	mg/kg	0.1	3.8	4	60 - 140	96	
	Anthracene	mg/kg	0.1	3.9	4	60 - 140	98	
	Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	92	
	Pyrene	mg/kg	0.1	4.5	4	60 - 140	113	
	Benzo(a)pyrene	mg/kg	0.1	3.9	4	60 - 140	97	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	118
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84	
d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	99		

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB278199.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	80

Speciated Phenols in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB278197.002	Phenol	mg/kg	0.5	1.1	1	70 - 130	112	
	2,4-dichlorophenol	mg/kg	0.5	1.3	1	70 - 130	126	
	2,4,6-trichlorophenol	mg/kg	0.5	1.3	1	70 - 130	126	
	Pentachlorophenol	mg/kg	0.5	0.7	1	70 - 130	70	
	Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	6.4	5	40 - 130	127
	d5-phenol (Surrogate)	mg/kg	-	2.3	2	40 - 130	116	

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 %
LB278210.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	104
	Cadmium, Cd	mg/kg	0.3	3.7	4.81	70 - 130	78
	Chromium, Cr	mg/kg	0.5	38	38.31	80 - 120	100
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	106
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	102
	Lead, Pb	mg/kg	1	94	89.9	80 - 120	104
	Zinc, Zn	mg/kg	2	270	273	80 - 120	100

TRH (Total Recoverable Hydrocarbons) in Soil

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]JAN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB278199.002	TRH C10-C14	mg/kg	20	44	40	60 - 140	111	
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	109	
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	83	
	TRH F Bands	TRH >C10-C16	mg/kg	25	44	40	60 - 140	111
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	104	
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	121	

VOC's in Soil

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB278200.002	Monocyclic	Benzene	mg/kg	0.1	5.2	5	60 - 140	103
	Aromatic	Toluene	mg/kg	0.1	4.9	5	60 - 140	98
		Ethylbenzene	mg/kg	0.1	4.9	5	60 - 140	99
		m/p-xylene	mg/kg	0.2	9.8	10	60 - 140	98
		o-xylene	mg/kg	0.1	5.0	5	60 - 140	99
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.7	10	70 - 130	117
		d8-toluene (Surrogate)	mg/kg	-	10.2	10	70 - 130	102
Bromofluorobenzene (Surrogate)		mg/kg	-	8.6	10	70 - 130	86	

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB278200.002		TRH C6-C10	mg/kg	25	88	92.5	60 - 140	96
		TRH C6-C9	mg/kg	20	76	80	60 - 140	96
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.7	10	70 - 130	117
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.6	10	70 - 130	86
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	59	62.5	60 - 140	94

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

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

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE246681.001	LB278213.004	Mercury	mg/kg	0.05	0.16	<0.05	0.2	72

OC Pesticides in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE246681.001	LB278199.004	Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
		Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	-	-
		Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	80
		Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	75
		Aldrin	mg/kg	0.1	0.2	<0.1	0.2	75
		Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		o,p'-DDE*	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	85
		Endrin	mg/kg	0.2	<0.2	<0.2	0.2	87
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
		o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	76
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
		Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		trans-Nonachlor	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	-	0.13	0.11	-	89

PCBs in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE246681.001	LB278199.004	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	95
		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	TCMX (Surrogate)	mg/kg	-	0	0	-	92

Speciated Phenols in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE246681.001	LB278197.004	Phenol	mg/kg	0.5	1.0	<0.5	1	104
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	-	-
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	-	-
		Total Cresol	mg/kg	1.5	<1.5	<1.5	-	-
		2-chlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,4-dichlorophenol	mg/kg	0.5	1.3	<0.5	1	126
		4-chloro-3-methylphenol	mg/kg	2	<2	<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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Speciated Phenols in Soil (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE246681.001	LB278197.004	2,4,6-trichlorophenol	mg/kg	0.5	1.2	<0.5	1	118	
		2-nitrophenol	mg/kg	0.5	<0.5	<0.5	-	-	
		4-nitrophenol	mg/kg	1	<1	<1	-	-	
		2,4,5-trichlorophenol	mg/kg	0.5	0.9	<0.5	-	-	
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	-	-	
		Pentachlorophenol	mg/kg	0.5	0.7	<0.5	1	72	
		2,4-dinitrophenol	mg/kg	2	<2	<2	-	-	
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	6.1	6.2	-	121
		d5-phenol (Surrogate)	mg/kg	-	2.2	2.1	-	112	

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE246681.001	LB278210.004	Arsenic, As	mg/kg	1	52	12	50	79
		Cadmium, Cd	mg/kg	0.3	40	<0.3	50	79
		Chromium, Cr	mg/kg	0.5	56	19	50	75
		Copper, Cu	mg/kg	0.5	57	21	50	73
		Nickel, Ni	mg/kg	0.5	55	15	50	81
		Lead, Pb	mg/kg	1	58	21	50	73
		Zinc, Zn	mg/kg	2	90	62	50	54

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE246681.001	LB278199.004	TRH C10-C14	mg/kg	20	65	<20	40	153	
		TRH C15-C28	mg/kg	45	120	<45	40	214	
		TRH C29-C36	mg/kg	45	92	<45	40	128	
		TRH C37-C40	mg/kg	100	<100	<100	-	-	
		TRH C10-C36 Total	mg/kg	110	270	<110	-	-	
		TRH >C10-C40 Total (F bands)	mg/kg	210	210	<210	-	-	
		TRH F	TRH >C10-C16	mg/kg	25	65	<25	40	152
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	65	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	150	<90	40	208	
		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%	
SE246681.001	LB278200.004	Monocyclic	Benzene	mg/kg	0.1	5.9	<0.1	5	117
			Aromatic	Toluene	mg/kg	0.1	5.7	<0.1	5
		Ethylbenzene		mg/kg	0.1	5.6	<0.1	5	112
		m/p-xylene		mg/kg	0.2	11	<0.2	10	111
		o-xylene		mg/kg	0.1	5.5	<0.1	5	111
		Polycyclic		Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.6	10	85
			d8-toluene (Surrogate)	mg/kg	-	9.1	9.8	10	91
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.4	9.9	10	84
		Totals	Total BTEX*	mg/kg	0.6	34	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	17	<0.3	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE246681.001	LB278200.004	TRH C6-C10	mg/kg	25	96	<25	92.5	103	
		TRH C6-C9	mg/kg	20	85	<20	80	106	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.6	10	85
			d8-toluene (Surrogate)	mg/kg	-	9.1	9.8	10	91
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.4	9.9	-	84
		VPH F	Benzene (F0)	mg/kg	0.1	5.9	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	62	<25	62.5	99

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: 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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 Order Number **P23052**
 Samples 13

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SGS Reference **SE246681 R0**
 Date Received 01 May 2023
 Date Reported 08 May 2023

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.
 A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures due to large volume. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.
 Asbestos analysed by Approved Identifier Ravee Sivasubramaniam

SIGNATORIES



Ravee SIVASUBRAMANIAM
 Hygiene Team Leader

RESULTS

Fibre Identification in soil

Method AS4964/AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE246681.004	TP104 0.5-0.6	Soil	241g Clay, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg	<0.01
SE246681.005	TP105 0.0-0.1	Soil	149g Clay, Soil, Rocks, Plant Matter	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE246681.006	TP105 2.0-2.1	Soil	223g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE246681.007	TP106 1.0-1.1	Soil	247g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg	<0.01
SE246681.008	TP107 0.0-0.1	Soil	184g Clay, Soil	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE246681.009	TP108 0.5-0.6	Soil	238g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE246681.010	TP109 0.5-0.6	Soil	196g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE246681.011	TP110 0.0-0.1	Soil	169g Clay	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE246681.012	TP111 0.5-0.6	Soil	272g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE246681.013	TP112 0.0-0.1	Soil	292g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg	<0.01
SE246681.014	TP113 0.0-0.1	Soil	151g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg	<0.01
SE246681.015	TP114 0.5-0.6	Soil	238g Clay, Sand, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg	<0.01
SE246681.016	TP115 0.0-0.1	Soil	191g Clay, Sand, Soil, Rocks	26 Apr 2023	No Asbestos Found at RL of 0.1g/kg	<0.01

METHOD

METHODOLOGY SUMMARY

AN602/AS4964	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602/AS4964	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602/AS4964	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602/AS4964	The sample can be reported "no asbestos found at the reporting limit (RL) of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- <ul style="list-style-type: none"> (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.

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.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This test report shall not be reproduced, except in full.



CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplerreceipt.sydney@sgs.com

Company Name: <u>Lanterra Consulting Pty Limited</u>	Project Name/No: <u>P23052 – Amaroo Tennis Club</u>
Address: <u>Unit 13/ 71 Leichhardt Street, Kingston ACT 2604</u>	Purchase Order No: _____
Contact Name: <u>Chris Gunton, Leonardo Baeza</u>	Results Required By: <u>Standard TAT</u>
	Telephone: _____
	Facsimile: _____
	Email Results: <u>chris@lanterra.com.au, leonardo@lanterra.com.au</u>

Client Sample ID	Date Sampled	Lab Sample ID	LIQUID	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15 – TRH, BTEX, PAH, OCP/OPP, PCB, Phenols, 8 Metias	Asbestos ID	HOLD											
TP101 0.0-0.1	26/04/23	1		X		2	X	114												
TP101 0.5-0.6	26/04/23			X		2			X											
TP101 1.0-1.1	26/04/23			X		2			X											
TP102 0.0-0.1	26/04/23			X		2			X											
TP102 0.5-0.6	26/04/23	2		X		2	X													
TP102 1.0-1.1	26/04/23			X		2			X											
TP103 0.0-0.1	26/04/23			X		2			X											
TP103 0.5-0.6	26/04/23			X		2			X											
TP103 1.0-1.1	26/04/23	3		X		2	X													
TP104 0.0-0.1	26/04/23			X		2			X											

SGS EHS Sydney COC
SE246681

Relinquished By: <u>L.Baeza</u>	Date/Time: <u>26/04/23</u>	Received By:	Date/Time: <u>1.5-23 11:30</u>
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____
Samples Intact: <u>Yes/ No</u>	Temperature: <u>Ambient / Chilled</u> 16-1	Sample Cooler Sealed: <u>Yes/ No</u>	Laboratory Quotation No: _____
Comments: _____			



CHAIN OF CUSTODY & ANALYSIS REQUEST

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Address: <u>Unit 13/ 71 Leichhardt Street, Kingston ACT 2604</u>	Purchase Order No: _____
Contact Name: <u>Chris Gunton, Leonardo Baeza</u>	Results Required By: <u>Standard TAT</u>
	Telephone: _____
	Facsimile: _____
	Email Results: <u>chris@lanterra.com.au, leonardo@lanterra.com.au</u>

Client Sample ID	Date Sampled	Lab Sample ID	LIQUID	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15 – TRH, BTEX, PAH, OCP/OPP, PCB, Phenols, 8 Metias	Asbestos ID	HOLD											
TP104 0.5-0.6	26/04/23	4		X		2	X	X												
TP104 1.0-1.1	26/04/23			X		2			X											
TP105 0.0-0.1	26/04/23	5		X		2	X	X												
TP105 0.5-0.6	26/04/23			X		2			X											
TP105 1.0-1.1	26/04/23			X		2			X											
TP105 2.0-2.1	26/04/23	6		X		2	X	X												
TP105 3.0-3.1	26/04/23			X		2			X											
TP106 0.0-0.1	26/04/23			X		2			X											
TP106 0.5-0.6	26/04/23			X		2			X											
TP106 1.0-1.1	26/04/23	7		X		2	X	X												

Relinquished By: <u>L.Baeza</u>	Date/Time: <u>26/04/23</u>	Received By: <u><i>[Signature]</i></u>	Date/Time: <u>11/05/23 @ 11.30</u>
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____
Samples Intact: <u>Yes</u> / No	Temperature: <u>Ambient</u> / Chilled	Sample Cooler Sealed: <u>Yes</u> / No	Laboratory Quotation No: _____
Comments: _____			



CHAIN OF CUSTODY & ANALYSIS REQUEST

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Alexandria NSW 2015
Telephone No: (02) 85940400
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Company Name:	Lanterra Consulting Pty Limited	Project Name/No:	P23052 – Amaroo Tennis Club
Address:	Unit 13/ 71 Leichhardt Street, Kingston ACT 2604	Purchase Order No:	
Contact Name:	Chris Gunton, Leonardo Baeza	Results Required By:	Standard TAT
		Telephone:	
		Facsimile:	
		Email Results:	chris@lanterra.com.au , leonardo@lanterra.com.au

Client Sample ID	Date Sampled	Lab Sample ID	LIQUID	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15 – TRH, BTEX, PAH, OCP/OPP, PCB, Phenols, 8 Metilas	Asbestos ID	HOLD											
TP106 2.0-2.1	26/04/23			X		2			X											
TP107 0.0-0.1	26/04/23	8		X		2	X	X												
TP107 0.5-0.6	26/04/23			X		2			X											
TP107 1.0-1.1	26/04/23			X		2			X											
TP107 2.0-2.1	26/04/23			X		2			X											
TP108 0.0-0.1	26/04/23			X		2			X											
TP108 0.5-0.6	26/04/23	9		X		2	X	X												
TP108 1.0-1.1	26/04/23			X		2			X											
TP108 2.0-2.1	26/04/23			X		2			X											
TP109 0.0-0.1	26/04/23			X		2			X											

Relinquished By: L.Baeza	Date/Time: 26/04/23	Received By: <i>[Signature]</i>	Date/Time: 01/05/23 @ 11:30
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: <u>Yes</u> /No	Temperature: Ambient / <u>Chilled</u>	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
Comments:			



CHAIN OF CUSTODY & ANALYSIS REQUEST

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Alexandria NSW 2015
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Company Name: <u>Lanterra Consulting Pty Limited</u>	Project Name/No: <u>P23052 – Amaroo Tennis Club</u>
Address: <u>Unit 13/ 71 Leichhardt Street, Kingston ACT 2604</u>	Purchase Order No: _____
Contact Name: <u>Chris Gunton, Leonardo Baeza</u>	Results Required By: <u>Standard TAT</u>
	Telephone: _____
	Facsimile: _____
	Email Results: <u>chris@lanterra.com.au, leonardo@lanterra.com.au</u>

Client Sample ID	Date Sampled	Lab Sample ID	LIQUID	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15 – TRH, BTEX, PAH, OCP/OPP, PCB, Phenols, & Metals	Asbestos ID	HOLD											
TP109 0.5-0.6	26/04/23	10		X		2	X	X												
TP109 1.0-1.1	26/04/23			X		2			X											
TP109 2.0-2.1	26/04/23			X		2			X											
TP110 0.0-0.1	26/04/23	11		X		2	X	X												
TP110 0.5-0.6	26/04/23			X		2			X											
TP110 1.0-1.1	26/04/23			X		2			X											
TP110 2.0-2.1	26/04/23			X		2			X											
TP111 0.0-0.1	26/04/23			X		2			X											
TP111 0.5-0.6	26/04/23	12		X		2	X	X												
TP111 1.0-1.1	26/04/23			X		2			X											

Relinquished By: L.Baeza	Date/Time: 26/04/23	Received By: <i>D. Subany</i>	Date/Time: <i>01/05/23 @ 11.30</i>
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: <u>Yes</u> /No	Temperature: Ambient / <u>Chilled</u>	Sample Cooler Sealed: Yes/No	Laboratory Quotation No:
Comments:			



CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplerreceipt.sydney@sgs.com

Company Name: <u>Lanterra Consulting Pty Limited</u>	Project Name/No: <u>P23052 – Amaroo Tennis Club</u>
Address: <u>Unit 13/ 71 Leichhardt Street, Kingston ACT 2604</u>	Purchase Order No: _____
Contact Name: <u>Chris Gunton, Leonardo Baeza</u>	Results Required By: <u>Standard TAT</u>
	Telephone: _____
	Facsimile: _____
	Email Results: <u>chris@lanterra.com.au, leonardo@lanterra.com.au</u>

Client Sample ID	Date Sampled	Lab Sample ID	LIQUID	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15 – TRH, BTEX, PAH, OCP/OPP, PCB, Phenols, 8 Metals	Asbestos ID	HOLD	Combination - 3										
TP115 0.5-0.6	26/04/23			X		2			X											
TP115 1.0-1.1	26/04/23			X		2			X											
QC1	26/04/23	17		X		2	X													
QC2	26/04/23			X		2				X	Please Forward to Envirolab									
QC3	26/04/23			X		2			X											
QC4	26/04/23			X		2			X											

Relinquished By: <u>L. Baeza</u>	Date/Time: <u>26/04/23</u>	Received By: <u>[Signature]</u>	Date/Time: <u>01/05/23 @ 11:30</u>
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____
Samples Intact: <u>Yes</u> / No	Temperature: Ambient / <u>Chilled</u>	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: _____
Comments: _____			

Yin, Emily (Sydney)

From: Miguel Barritt, Elsa (Sydney)
Sent: Friday, 28 April 2023 3:38 PM
To: AU.SampleReceipt.Sydney, AU (Sydney)
Cc: AU.Environmental.Sydney, AU (Sydney)
Subject: FW: [EXTERNAL] Eskys and samples

FYA - See client request about Project No: changes below. Please correct upon arrival. Any issues let us know..
Thanks

Kind Regards

Elsa Miguel Barritt
Industries and Environment
Key Account Manager
Asbestos Sampler : CPCC8C5014A

SGS Australia Pty Ltd

Unit 16, 33 Maddox Street

Alexandria, NSW, 2015

Phone: +61 (0)2 8594 0400

Direct: +61 (0)2 8594 0455

Mobile : (0)4 0797 2867

E-mail: Elsa.MiguelBarritt@sgs.com

General E-mail : au.environmental.sydney@sgs.com

Web: www.au.sgs.com

Note: Working Hours : Office Tuesday, Thursday, Friday : 9am to 4:30pm

Office Wednesday 8am to 3pm

Working Remotely Monday : 9am to 5pm



From: Leonardo Baeza <leonardo@lanterra.com.au>
Sent: Friday, 28 April 2023 3:30 PM
To: AU.Environmental.Sydney, AU (Sydney) <AU.Environmental.Sydney@sgs.com>
Subject: [EXTERNAL] Eskys and samples

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

Good afternoon,

We dropped 4 eskys at TNT Hume Depot, Canberra, just now.

The jars inside have the wrong project number.

Please use the project number noted in the COC (P23052).

CLIENT DETAILS

Contact Chris Gunton
 Client LANTERRA CONSULTING PTY LTD
 Address UNIT 13
 71 LEICHHARDT STREET
 KINGSTON ACT 2604

Telephone 0432 324 348
 Facsimile (Not specified)
 Email Chris.Gunton@lanterra.com.au

Project **P23052 - Amaroo Tennis Club**
 Order Number **P23052**
 Samples 17

LABORATORY DETAILS

Manager Huong Crawford
 Laboratory SGS Alexandria Environmental
 Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone +61 2 8594 0400
 Facsimile +61 2 8594 0499
 Email au.environmental.sydney@sgs.com

Samples Received Mon 1/5/2023
 Report Due Mon 8/5/2023
 SGS Reference **SE246681**

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Monday 1/5/2023. Results are expected to be ready by COB Monday 8/5/2023. Please quote SGS reference SE246681 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	17 Soil	Type of documentation received	COC
Date documentation received	1/5/2023	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	16.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

COMMENTS

38 Soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.
 1 Extra sample received - TP104_2-2.1

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CLIENT DETAILS

Client **LANTERRA CONSULTING PTY LTD**

Project **P23052 - Amaroo Tennis Club**

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Speciated Phenols in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP101 0.0-0.1	30	14	26	11	18	10	11	7
002	TP102 0.5-0.6	30	14	26	11	18	10	11	7
003	TP103 1.0-1.1	30	14	26	11	18	10	11	7
004	TP104 0.5-0.6	30	14	26	11	18	10	11	7
005	TP105 0.0-0.1	30	14	26	11	18	10	11	7
006	TP105 2.0-2.1	30	14	26	11	18	10	11	7
007	TP106 1.0-1.1	30	14	26	11	18	10	11	7
008	TP107 0.0-0.1	30	14	26	11	18	10	11	7
009	TP108 0.5-0.6	30	14	26	11	18	10	11	7
010	TP109 0.5-0.6	30	14	26	11	18	10	11	7
011	TP110 0.0-0.1	30	14	26	11	18	10	11	7
012	TP111 0.5-0.6	30	14	26	11	18	10	11	7
013	TP112 0.0-0.1	30	14	26	11	18	10	11	7
014	TP113 0.0-0.1	30	14	26	11	18	10	11	7
015	TP114 0.5-0.6	30	14	26	11	18	10	11	7
016	TP115 0.0-0.1	30	14	26	11	18	10	11	7
017	QC1	30	14	26	11	18	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.

CLIENT DETAILS

Client **LANTERRA CONSULTING PTY LTD**

Project **P23052 - Amaroo Tennis Club**

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	Total Recoverable Elements in Soil/Waste
001	TP101 0.0-0.1	-	1	1	7
002	TP102 0.5-0.6	-	1	1	7
003	TP103 1.0-1.1	-	1	1	7
004	TP104 0.5-0.6	2	1	1	7
005	TP105 0.0-0.1	2	1	1	7
006	TP105 2.0-2.1	2	1	1	7
007	TP106 1.0-1.1	2	1	1	7
008	TP107 0.0-0.1	2	1	1	7
009	TP108 0.5-0.6	2	1	1	7
010	TP109 0.5-0.6	2	1	1	7
011	TP110 0.0-0.1	2	1	1	7
012	TP111 0.5-0.6	2	1	1	7
013	TP112 0.0-0.1	2	1	1	7
014	TP113 0.0-0.1	2	1	1	7
015	TP114 0.5-0.6	2	1	1	7
016	TP115 0.0-0.1	2	1	1	7
017	QC1	-	1	1	7

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

CERTIFICATE OF ANALYSIS 322024

Client Details

Client	Lanterra Consulting Pty Ltd
Attention	Chris Gunton.
Address	Unit 4 / 19 Trenerry St, WESTON, ACT, 2611

Sample Details

Your Reference	<u>P23052-Amaroo Tennis Club</u>
Number of Samples	1 Soil
Date samples received	01/05/2023
Date completed instructions received	01/05/2023

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	08/05/2023
Date of Issue	08/05/2023
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Kyle Gavrily, Senior Chemist
 Liam Timmins, Organics Supervisor
 Loren Bardwell, Development Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		322024-1
Your Reference	UNITS	QC2
Date Sampled		26/04/2023
Type of sample		Soil
Date extracted	-	02/05/2023
Date analysed	-	03/05/2023
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	%	90

svTRH (C10-C40) in Soil		
Our Reference		322024-1
Your Reference	UNITS	QC2
Date Sampled		26/04/2023
Type of sample		Soil
Date extracted	-	02/05/2023
Date analysed	-	03/05/2023
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	%	70

PAHs in Soil		
Our Reference		322024-1
Your Reference	UNITS	QC2
Date Sampled		26/04/2023
Type of sample		Soil
Date extracted	-	02/05/2023
Date analysed	-	03/05/2023
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	90

Acid Extractable metals in soil		
Our Reference		322024-1
Your Reference	UNITS	QC2
Date Sampled		26/04/2023
Type of sample		Soil
Date prepared	-	02/05/2023
Date analysed	-	08/05/2023
Arsenic	mg/kg	16
Cadmium	mg/kg	<0.4
Chromium	mg/kg	22
Copper	mg/kg	22
Lead	mg/kg	19
Mercury	mg/kg	<0.1
Nickel	mg/kg	17
Zinc	mg/kg	48

Client Reference: P23052-Amaroo Tennis Club

Moisture		
Our Reference		322024-1
Your Reference	UNITS	QC2
Date Sampled		26/04/2023
Type of sample		Soil
Date prepared	-	2/05/2023
Date analysed	-	3/05/2023
Moisture	%	9.5

Client Reference: P23052-Amaroo Tennis Club

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-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
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.

Client Reference: P23052-Amaroo Tennis Club

Method ID	Methodology Summary
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.

Client Reference: P23052-Amaroo Tennis Club

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			02/05/2023	[NT]	[NT]	[NT]	[NT]	02/05/2023	[NT]
Date analysed	-			03/05/2023	[NT]	[NT]	[NT]	[NT]	03/05/2023	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	108	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	108	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	107	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	112	[NT]	[NT]	[NT]	[NT]	100	[NT]

Client Reference: P23052-Amaroo Tennis Club

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			02/05/2023	[NT]	[NT]	[NT]	[NT]	02/05/2023	[NT]
Date analysed	-			02/05/2023	[NT]	[NT]	[NT]	[NT]	02/05/2023	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	71	[NT]

Client Reference: P23052-Amaroo Tennis Club

QUALITY CONTROL: PAHs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			02/05/2023	[NT]	[NT]	[NT]	[NT]	02/05/2023	[NT]
Date analysed	-			03/05/2023	[NT]	[NT]	[NT]	[NT]	03/05/2023	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	122	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	90	[NT]

Client Reference: P23052-Amaroo Tennis Club

QUALITY CONTROL: Acid Extractable metals in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			02/05/2023	[NT]	[NT]	[NT]	[NT]	02/05/2023	[NT]
Date analysed	-			08/05/2023	[NT]	[NT]	[NT]	[NT]	08/05/2023	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	107	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	111	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	113	[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.

Borelogs



BORE LOG Pit 101

PROJECT NUMBER: P23052
 CLIENT NAME: Stantec Australia Pty Ltd
 ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
 CONTRACTOR: (Unknown)
 DRILL METHOD: Excavator
 DIAMETER: N.A. (test pit)
 HOLE DEPTH: 1.4 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
 EASTING: 693,514.6718 mE
 NORTHING: 6,107,183.113 mN
 ELEVATION (APPROX): 626.4 AHD
 DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP101 0.0-0.1	N.A.	Y		SC	(0.0) Silty CLAY: brown-light brown, dry-moist, soft-firm, low-medium plasticity	Topsoil Trace rootlets	626
0.5		TP101 0.5-0.6	N.A.	N.A.		SC	(0.4) Silty CLAY: light brown-grey, dry-moist, soft-firm, medium plasticity		
1.0	Natural	TP101 1.0-1.1	N.A.	N.A.			(1.2) SILTSTONE		625
1.5								EOH at 1.4m Limit of investigation (refusal)	
2.0									624
2.5									
3.0									
3.5									623

Comments

LOGGED BY A. Patkar
 CHECKED BY L. Baeza



BORE LOG
Pit 102

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo	COORDINATE SYSTEM: GDA2020 / MGA zone 55
CONTRACTOR: (Unknown)	EASTING: 693,495.5435 mE
DRILL METHOD: Excavator	NORTHING: 6,107,163.359 mN
DIAMETER: N.A. (test pit)	ELEVATION (APPROX): 626.0 AHD
HOLE DEPTH: 1.2 m	DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP102 0.0-0.1	N.A.	N.A.		SC	(0.0) Silty CLAY: dark brown, dry-moist, soft-firm, low-medium plasticity	Topsoil Trace rootlets	626
0.5		TP102 0.5-0.6	N.A.	Y		SC	(0.4) Silty CLAY: brown-grey, dry-moist, soft, medium-high plasticity		
1.0	Natural	TP102 1.0-1.1	N.A.	N.A.					625
1.5								EOH at 1.2 m Limit of investigation	
2.0									624
2.5									
3.0									623
3.5									

Comments	LOGGED BY A. Patkar CHECKED BY L. Baeza
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BORE LOG
Pit 103

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo	COORDINATE SYSTEM: GDA2020 / MGA zone 55
CONTRACTOR: (Unknown)	EASTING: 693,472.5061 mE
DRILL METHOD: Excavator	NORTHING: 6,107,119.317 mN
DIAMETER: N.A. (test pit)	ELEVATION (APPROX): 625.3 AHD
HOLE DEPTH: 1.5 m	DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP103 0.0-0.1	N.A.	N.A.		SC	(0.0) Silty CLAY: dark brown, dry-moist, soft, medium plasticity	Topsoil Trace rootlets	625
0.5		TP103 0.5-0.6	N.A.	N.A.		SC	(0.4) Silty CLAY: dark brown-black, dry-moist, soft, medium-high plasticity	Minor trace rootlets	
1.0	Natural	TP103 1.0-1.1	N.A.	Y		SC	(1.0) Silty CLAY: grey-brown, dry-moist, soft, medium-high plasticity		624
1.5								EOH at 1.5m Limit of investigation	
2.0									623
2.5									
3.0									622
3.5									

Comments	LOGGED BY A. Patkar CHECKED BY L. Baeza
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BORE LOG
Pit 104

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo	COORDINATE SYSTEM: GDA2020 / MGA zone 55
CONTRACTOR: (Unknown)	EASTING: 693,515.2451 mE
DRILL METHOD: Excavator	NORTHING: 6,107,135.839 mN
DIAMETER: N.A. (test pit)	ELEVATION (APPROX): 627.1 AHD
HOLE DEPTH: 2.2 m	DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP104 0.0-0.1	N.A.	N.A.		SC	(0.0) Silty CLAY: brown-dark brown, dry-moist, firm, low plasticity	Topsoil Trace rootlets	627
0.5		TP104 0.5-0.6	N.A.	Y		GC	(0.4) Sandy Clayey GRAVEL: brown-orange, dry-moist, loose		
1.0	Fill	TP104 1.0-1.1	N.A.	N.A.		GW	(1.0) Sandy GRAVEL: brown-orange, dry-wet, loose	Water observed in test pit at 2.0m	626
1.5									
2.0	Natural							EOH at 2.2m Limit of investigation Water observed at base of pit	625
2.5									
3.0									
3.5									

Comments	LOGGED BY A. Patkar CHECKED BY L. Baeza
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BORE LOG Pit 105

PROJECT NUMBER: P23052
 CLIENT NAME: Stantec Australia Pty Ltd
 ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
 CONTRACTOR: (Unknown)
 DRILL METHOD: Excavator
 DIAMETER: N.A. (test pit)
 HOLE DEPTH: 3.1 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
 EASTING: 693,540.5758 mE
 NORTHING: 6,107,135.318 mN
 ELEVATION (APPROX): 627.6 AHD
 DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP105 0.0-0.1	N.A.	Y		ML	(0.0) Silty CLAY: brown-dark brown, dry-moist, soft, low plasticity	Topsoil Trace rootlets	
0.5		TP105 0.5-0.6	N.A.	N.A.		ML	(0.4) Clayey SILT: brown-purple, dry-moist, soft, low plasticity	Trace rootlets	627
1.0	Fill	TP105 1.0-1.1	N.A.	N.A.		ML	(1.0) Clayey SILT: light brown-yellow, dry-moist, soft, low plasticity		
2.0		TP105 2.0-2.1	N.A.	Y		GC	(2.0) Gravelly CLAY: brown-yellow mottled grey, moist, soft, medium plasticity	Natural Weathered material	
2.5	Natural							Water observed at 2.3m	
3.0		TP105 3.0-3.1	N.A.	N.A.		GC	(3.0) Clayey GRAVEL: brown-yellow, wet, soft, medium plasticity		625
3.5								EOH at 3.1m Limit of investigation Water observed at the base of the pit	

Comments

LOGGED BY A. Patkar
 CHECKED BY L. Baeza



BORE LOG Pit 106

PROJECT NUMBER: P23052
 CLIENT NAME: Stantec Australia Pty Ltd
 ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
 CONTRACTOR: (Unknown)
 DRILL METHOD: Excavator
 DIAMETER: N.A. (test pit)
 HOLE DEPTH: 2.6 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
 EASTING: 693,546.1006 mE
 NORTHING: 6,107,166.799 mN
 ELEVATION (APPROX): 627.3 AHD
 DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP106 0.0-0.1	N.A.	N.A.		ML	(0.0) Silty CLAY: brown-dark brown, dry-moist, soft	Topsoil Trace rootlets	627
0.5		TP106 0.5-0.6	N.A.	N.A.		CL	(0.4) Clayey SILT: dark grey-brown, dry-moist, soft	Trace rootlets	
1.0	Fill	TP106 1.0-1.1	N.A.	Y		CH	(1.0) Silty CLAY: grey-yellow, dry, soft, medium-high plasticity	Traces of angular rock fragments	626
2.0		TP106 2.0-2.1	N.A.	N.A.		GC	(2.0) Clayey GRAVEL: brown-grey, wet, soft	Water observed at 2.0m	625
2.5								EOH at 2.6m Limit of investigation (refusal) Water observed at base of pit	624
3.0									
3.5									

Location moved a few meters away due to nearby sewer line

LOGGED BY A. Patkar
 CHECKED BY L. Baeza



BORE LOG Pit 107

PROJECT NUMBER: P23052
 CLIENT NAME: Stantec Australia Pty Ltd
 ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
 CONTRACTOR: (Unknown)
 DRILL METHOD: Excavator
 DIAMETER: N.A. (test pit)
 HOLE DEPTH: 2.6 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
 EASTING: 693,594.625 mE
 NORTHING: 6,107,183.269 mN
 ELEVATION (APPROX): 627.6 AHD
 DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP107 0.0-0.1	N.A.	Y		ML	(0.0) Clayey SILT: brown-dark brown, dry-moist, loose	Topsoil Trace rootlets	
0.5		TP107 0.5-0.6	N.A.	N.A.		CL	(0.4) Silty CLAY: brown-yellow, dry-moist, soft, medium plasticity		627
1.0	Natural	TP107 1.0-1.1	N.A.	N.A.		GC	(1.0) Clayey Sandy GRAVEL: brown-yellow, dry-moist, loose	Angular rock fragments	
1.5							at 1.9m, wet		626
2.0		TP107 2.0-2.1	N.A.	N.A.				Water observed at 1.9m	
2.5								EOH at 2.1m Limit of investigation Water observed at base of pit	625
3.0									
3.5									

Comments

LOGGED BY A. Patkar
 CHECKED BY L. Baeza



BORE LOG
Pit 108

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo	COORDINATE SYSTEM: GDA2020 / MGA zone 55
CONTRACTOR: (Unknown)	EASTING: 693,597.3352 mE
DRILL METHOD: Excavator	NORTHING: 6,107,160.753 mN
DIAMETER: N.A. (test pit)	ELEVATION (APPROX): 627.7 AHD
HOLE DEPTH: 2.2 m	DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP108 0.0-0.1	N.A.	Y		ML	(0.0) Clayey SILT: brown-dark brown, dry-moist, loose	Topsoil Trace rootlets	
0.5		TP108 0.5-0.6	N.A.	N.A.		GM	(0.4) Silty GRAVEL: brown, dry-moist, loose	Abundant rock fragments	627
1.0		TP108 1.0-1.1	N.A.	N.A.					626
2.0		TP108 2.0-2.1	N.A.	N.A.				at 2.0m, wet	625
2.5	Natural							EOH at 2.2m Limit of investigation	
3.5									

Comments	LOGGED BY A. Patkar CHECKED BY L. Baeza
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BORE LOG Pit 109

PROJECT NUMBER: P23052
 CLIENT NAME: Stantec Australia Pty Ltd
 ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
 CONTRACTOR: (Unknown)
 DRILL METHOD: Excavator
 DIAMETER: N.A. (test pit)
 HOLE DEPTH: 2.1 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
 EASTING: 693,570.7537 mE
 NORTHING: 6,107,135.422 mN
 ELEVATION (APPROX): 627.4 AHD
 DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP109 0.0-0.1	N.A.	Y		ML	(0.0) Silty CLAY: brown-dark brown, dry-moist, loose, low plasticity	Topsoil Trace rootlets	627
0.5		TP109 0.5-0.6	N.A.	N.A.		ML	(0.4) Clayey SILT: grey-light brown, dry-moist, loose		
1.0	Fill	TP109 1.0-1.1	N.A.	N.A.		GC	(1.0) Sandy Silty GRAVEL: grey, dry, hard		626
2.0		TP109 2.0-2.1	Y	N.A.				Brown clay lumps mixed with large angular gravel, low-medium plasticity	
2.5	Natural							EOH at 2.1m Limit of investigation	625
3.0									
3.5									624

Comments

LOGGED BY A. Patkar
 CHECKED BY L. Baeza



BORE LOG Pit 110

PROJECT NUMBER: P23052
 CLIENT NAME: Stantec Australia Pty Ltd
 ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
 CONTRACTOR: (Unknown)
 DRILL METHOD: Excavator
 DIAMETER: N.A. (test pit)
 HOLE DEPTH: 2.1 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
 EASTING: 693,617.7666 mE
 NORTHING: 6,107,109.518 mN
 ELEVATION (APPROX): 627.7 AHD
 DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP110 0.0-0.1	N.A.	Y		ML	(0.0) Clayey SILT: brown-dark brown, dry-moist, loose	Topsoil Trace rootlets	
0.5		TP110 0.5-0.6	N.A.	N.A.		SM	(0.4) Sandy SILT: brown-orange, dry-moist, loose		627
1.0	Natural	TP110 1.0-1.1	N.A.	N.A.		GM	(1.0) Silty Sandy GRAVEL: brown, dry-moist, loose		626
2.0		TP110 2.0-2.1	Y	N.A.		GP	(2.0) Sandy GRAVEL: brown, dry-moist, loose	Siltstone Fragments EOH at 2.1m Limit of investigation (refusal)	625
2.5									
3.0									
3.5									

Comments

LOGGED BY A. Patkar
 CHECKED BY L. Baeza



BORE LOG
Pit 111

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo	COORDINATE SYSTEM: GDA2020 / MGA zone 55
CONTRACTOR: (Unknown)	EASTING: 693,601.14 mE
DRILL METHOD: Excavator	NORTHING: 6,107,042.647 mN
DIAMETER: N.A. (test pit)	ELEVATION (APPROX): 628.4 AHD
HOLE DEPTH: 2.1 m	DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP111 0.0-0.1	N.A.	N.A.		SC	(0.0) Sandy Clayey SILT: brown-dark brown, dry-moist, loose	Topsoil Trace rootlets	628
0.5		TP111 0.5-0.6	N.A.	Y		GM	(0.4) Sandy Silty GRAVEL: brown-orange, dry, loose		
1.0	Natural	TP111 1.0-1.1	N.A.	N.A.				Increase in soil sand and silt content	627
1.5								EOH at 1.2m Limit of investigation	
2.0									626
2.5									
3.0									
3.5									625

Comments	LOGGED BY A. Patkar CHECKED BY L. Baeza
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BORE LOG
Pit 112

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo	COORDINATE SYSTEM: GDA2020 / MGA zone 55
CONTRACTOR: (Unknown)	EASTING: 693,627.8258 mE
DRILL METHOD: Excavator	NORTHING: 6,107,015.753 mN
DIAMETER: N.A. (test pit)	ELEVATION (APPROX): 628.2 AHD
HOLE DEPTH: 1.1 m	DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP112 0.0-0.1	N.A.	Y		SC	(0.0) Sandy Clayey SILT: brown-purple, dry-moist, loose	Topsoil Trace rootlets	628
0.5		Natural	TP112 0.5-0.6	N.A.	N.A.		GC	(0.4) Sandy Clayey SILT: brown-orange, dry-moist, loose	
1.0			TP112 1.0-1.1	N.A.	N.A.		GM	(1.0) Sandy Silty GRAVEL: brown-light brown, dry, loose	EOH at 1.1m Limit of investigation
1.5									
2.0									626
2.5									
3.0									625
3.5									

Comments	LOGGED BY A. Patkar CHECKED BY L. Baeza
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BORE LOG
Pit 113

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo	COORDINATE SYSTEM: GDA2020 / MGA zone 55
CONTRACTOR: (Unknown)	EASTING: 693,654.9286 mE
DRILL METHOD: Excavator	NORTHING: 6,106,969.574 mN
DIAMETER: N.A. (test pit)	ELEVATION (APPROX): 627.9 AHD
HOLE DEPTH: 1.1 m	DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP113 0.0-0.1	N.A.	Y		SC	(0.0) Sandy Clayey SILT: brown-purple, dry-moist, loose	Topsoil Trace rootlets	
0.5		Natural	TP113 0.5-0.6	N.A.	N.A.		CL	(0.4) Silty CLAY: brown-grey, dry-moist, soft, medium-high plasticity	
1.0			TP113 1.0-1.1	N.A.	N.A.				Traces of angular rock fragments
1.5								EOH at 1.1m Limit of investigation	
2.0									626
2.5									
3.0									625
3.5									

Comments	LOGGED BY A. Patkar CHECKED BY L. Baeza
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BORE LOG
Pit 114

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
CONTRACTOR: (Unknown)
DRILL METHOD: Excavator
DIAMETER: N.A. (test pit)
HOLE DEPTH: 1.1 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
EASTING: 693,688.338 mE
NORTHING: 6,106,953.886 mN
ELEVATION (APPROX): 628.8 AHD
DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP114.0.0-0.1	N.A.	N.A.		ML	(0.0) Clayey SILT: brown-dark brown, dry-moist, loose	Topsoil Trace rootlets	
0.5		TP114.0.5-0.6	N.A.	Y		GM	(0.4) Gravelly SILT: brown, dry-moist, loose		628
1.0	Natural	TP114.1.0-1.1	N.A.	N.A.		GC	(1.0) Clayey Sandy GRAVEL: brown-orange, dry, loose	EOH at 1.1m Limit of investigation	627
1.5									626
2.0									
2.5									
3.0									
3.5									

Comments

LOGGED BY A. Patkar
CHECKED BY L. Baeza



BORE LOG
Pit 115

PROJECT NUMBER: P23052
CLIENT NAME: Stantec Australia Pty Ltd
ADDRESS: Block 4 Section 109, Amaroo, ACT 4829

PROJECT NAME: Detailed Site Investigation, B4 S109 Amaroo
CONTRACTOR: (Unknown)
DRILL METHOD: Excavator
DIAMETER: N.A. (test pit)
HOLE DEPTH: 1.1 m

COORDINATE SYSTEM: GDA2020 / MGA zone 55
EASTING: 693,718.151 mE
NORTHING: 6,106,932.725 mN
ELEVATION (APPROX): 629.5 AHD
DATE DRILLED: 26/05/2023

Depth (m)	Geological Unit	Sample Name	PID (ppm)	Analysed	Graphic	USCS	(Depth) Lithological Description	Additional Observations	Elevation (AHD)
0.0	Topsoil	TP115 0.0-0.1	N.A.	Y		GC	(0.0) Gravelly Silty CLAY: brown-dark brown, dry-moist, soft, low plasticity	Topsoil Trace rootlets	
0.5		TP115 0.5-0.6	N.A.	N.A.		CL	(0.4) Silty CLAY: red-brown, dry-moist, soft, low-medium plasticity		629
1.0	Natural	TP115 1.0-1.1	N.A.	N.A.		GW	(1.0) Sandy GRAVEL: brown-grey, dry, loose	Angular rock fragments EOH at 1.1m Limit of investigation	
1.5									628
2.0									
2.5									627
3.0									
3.5									626

Comments

LOGGED BY A. Patkar
CHECKED BY L. Baeza

Field Equipment's Calibration Certificates

Calibration and Service Report

Company: ETS Rentals Department
Contact: Aachal Chand
Address: 9/171 Power Street,
GLENDENNING NSW 2761
Phone: 02 9730 2019
Fax:
Email: rentals@experttesting.com.au

Manufacturer: Honeywell
Instrument: MiniRAE 3000
Model: PGM7320
Configuration: VOC
Wireless: -
Network ID: -
Unit ID: -

Serial #: 592-915169
Asset #: -
Part #: -
Sold: -
Last Cal: 27.03.2023
Job #:
Cal Spec: Std
Order #:

Item	Test	Pass/Fail	Comments	Part Code	S/W
Battery	NiCd, NiMH, Dry cell, Li Ion	✓			
Charger	Charger, Power supply	✓			
	Cradle	✓			
Pump	Flow	✓	>500ml/min		
Filter	Filter, fitting, etc	✓			
Alarms	Audible, visual, vibration	✓			
Display	Operation	✓			
Switches	Operation	✓			
PCB	Operation	✓			
Connectors	Condition	✓			
Firmware	Version	✓	Version: 2.22		
Datalogger	Operation	✓			
Monitor Housing	Condition	✓			
Case	Condition/Type	✓			
Sensors					
	PID Lamp	✓			
	PID Sensor	✓			
	THP Sensor	✓			

Engineer's Report

Checked unit settings and configuration – okay
Unit allowed to stabilize and zero calibration performed as per manufacturers specifications
Calibration procedure written and performed to manufacturers specification using traceable gases.

Calibration Certificate

Sensor	Type	Serial No:	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
PID	10.6eV	-	Isobutylene	100ppm	190793	1	0	100ppm

Calibrated/Repaired by:

Milenko Sasic

Date:

27.03.2023

Next Due:

27.09.2023



EIL Calculations

Inputs	
Select contaminant from list below	
As	
Below needed to calculate fresh and aged ACLs	
Below needed to calculate fresh and aged ABCs	
or for fresh ABCs only	
or for aged ABCs only	

Outputs		
Land use	Arsenic generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	40
Urban residential and open public spaces	50	100
Commercial and industrial	80	160

Inputs	
Select contaminant from list below	
Cr III	
Below needed to calculate fresh and aged ACLs	
Enter % clay (values from 0 to 100%)	
1	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Cr III soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	100	70
Urban residential and open public spaces	150	190
Commercial and industrial	200	320

Inputs	
Select contaminant from list below	Cu
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	5
Enter soil pH (calcium chloride method) (values from 1 to 14)	5.5
Enter organic carbon content (%OC) (values from 0 to 50%)	1
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	7
or for aged ABCs only	
Enter State (or closest State)	NSW
Enter traffic volume (high or low)	low

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	45	50
Urban residential and open public spaces	70	110
Commercial and industrial	95	150

Inputs	
Select contaminant from list below	
DDT	
Below needed to calculate fresh and aged ACLs	
Below needed to calculate fresh and aged ABCs	
or for fresh ABCs only	
or for aged ABCs only	

Outputs		
Land use	DDT generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	3	3
Urban residential and open public spaces	180	180
Commercial and industrial	640	640

Inputs	
Select contaminant from list below	
Naphthalene	
Below needed to calculate fresh and aged ACLs	
Below needed to calculate fresh and aged ABCs	
or for fresh ABCs only	
or for aged ABCs only	

Outputs		
Land use	Naphthalene generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	10	10
Urban residential and open public spaces	170	170
Commercial and industrial	370	370

Inputs	
Select contaminant from list below	Ni
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	5
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	7
or for aged ABCs only	
Enter State (or closest State)	NSW
Enter traffic volume (high or low)	low

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	30	10
Urban residential and open public spaces	35	35
Commercial and industrial	45	60

Inputs	
Select contaminant from list below	
Pb	
Below needed to calculate fresh and aged ACLs	
Below needed to calculate fresh and aged ABCs	
or for fresh ABCs only	
or for aged ABCs only	

Outputs		
Land use	Lead generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	110	470
Urban residential and open public spaces	270	1100
Commercial and industrial	440	1800

Inputs	
Select contaminant from list below	Zn
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	5
Enter soil pH (calcium chloride method) (values from 1 to 14)	5.5
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	7
or for aged ABCs only	
Enter State (or closest State)	NSW
Enter traffic volume (high or low)	low

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	50	120
Urban residential and open public spaces	100	260
Commercial and industrial	140	360

PSI Photographs

Client Name
Cardno NSW/ACT Pty Ltd

Site Location
Block 4 Section 109, Amaroo



Project No.
P22059

<p>Photo No. 1.</p>	<p>Date 09/06/2022</p>	
<p>Description View across the eastern corner of the site to Horse Park Drive, stormwater / drainage channel and Jacka beyond.</p>		
<p>Photo No. 2.</p>	<p>Date 09/06/2022</p>	
<p>Description View to the north across the site with Horse Park Drive and the suburbs of Moncrieff and Jacka beyond.</p>		

Client Name
Cardno NSW/ACT Pty Ltd

Site Location
Block 4 Section 109, Amaroo

Project No.
P22059

<p>Photo No. 3.</p>	<p>Date 09/06/2022</p>	
<p>Description View of the south-west corner of the site, with the sporting fields and Moncrieff beyond.</p>		
<p>Photo No. 4.</p>	<p>Date 09/06/2022</p>	
<p>Description View across the site to the north. The unnamed creek adjacent to the southern boundary can be seen in the foreground.</p>		

DSI Checklist

Detailed Site Investigation Checklist

Report Title: Detailed Site Investigation, Block 4 Section 109, Amaroo

Date: 20 June 2023

The following checklist template has been adopted from the NSW EPA *Consultants reporting on contaminated land Contaminated Land Guidelines*, May 2020.

Report Section	Required Information	Present Yes/No/NA
Document Control	Date, Version Number, author and reviewer (including certification details) and who commissioned the report	Yes
Executive Summary	Background	Yes
	Objectives of the Investigation	Yes
	Scope of Work	Yes
	Summary of key findings	Yes
	Summary of conclusions and recommendations	Yes
Objectives	The objectives of the investigation / report and the broader objectives for the site/investigation	Yes
Scope of Work	Scope of work performed (and work not undertaken where relevant)	Yes
Site Identification	Site identification and detail items from ASC NEPM Field Checklist 'Site Information' sheet	Yes (See Comments Below)
Site History	Review of Aerial Photographs	N/A
	Contaminated Land Search	N/A
	Groundwater Bore Search	Yes
	Review of Historical Plans or Records held by ACT Government	N/A
	A review of current and former uses of the site	Yes
	A review of heating methods utilised at the site including an inspection to identify the presence otherwise of aboveground and/or underground fuel storage tanks and other potentially contaminating activities	Yes
	A review of dangerous substances storage at the site	N/A

	Discussions with current and past land managers, lessees and site users	Yes
	Land Title Searches	N/A
	Identification of potential contaminant types based on site uses, site history and building records.	Yes
Site Condition and Surrounding Environment	Site condition and surrounding environment items from ASC NEPM Field Checklist 'Site Information' sheet	Yes
Conceptual Site Model	Regional and local geology, hydrogeology and hydrology items from the ASC NEPM Field Checklist 'CSM' sheet	Yes
	List of Potential contaminants of potential concern	Yes
	Potential and known sources of contamination, on- and offsite	Yes
	Mechanism of contamination (e.g. top-down spill, subsurface release from tank or pipe, atmospheric deposition etc.)	Yes
	Potentially affected environmental media	Yes
	Consideration of spatial and temporal variations	Yes
	Actual or potential exposure pathways including preferential pathways	Yes
	Human and ecological receptors	Yes
	Frequency of exposure	N/A
	Linkage of source, pathway and receptor assessed in terms of potentially complete pathways and likelihood	Yes
	Discussion on multiple lines of evidence (for complex sites)	N/A
Data Quality Objectives	Step 1: State the Problem	Yes
	Step 2: Identify the decision/goal of the study	Yes
	Step 3: Identify the information inputs	Yes
	Step 4: Define the boundaries of the study	Yes
	Step 5: Develop the analytical approach	Yes
	Step 6: Specify performance and acceptance criteria	Yes
	Step 7: Develop the plan for obtaining data	Yes
Sampling and Analysis Quality Plan and Sampling Methodology		N/A
Quality Assurance / Quality Control	Details of Sampling Team	Yes
	References to sampling plan/method, including any deviations from it – sampling and analysis quality plan	N/A
	Any information that could be required to evaluate measurement uncertainty for subsequent testing (analysis)	N/A
	Decontamination procedures carried out between sampling events	Yes

	Logs for each sample collected, including date, time, locations (with GPS Coordinates if possible), sampler, duplicate samples, chemical analyses to be performed, site observations and weather/environmental (i.e. surroundings) conditions. Include any diagrams, maps, photos.	Yes
	Chain of Custody fully identifying for each sample – the sampler, nature of the sample, collection date, analyses to be performed, sample preservation method, departure time from the site and dispatch couriers (where applicable).	Yes
	Field quality assurance/quality control results (e.g. field blank, rinsate blank, trip blank, laboratory prepared trip spike)	Yes
	Sample splitting techniques – subsampling, containers/preservation (ensure unique ID for subsequent samples provided)	Yes
	Statement of duplicate frequency	Yes
	Background sample results	N/A
	Field instrument calibrations	Yes
	Sampling devices and equipment	Yes
	A copy of signed chain of custody forms acknowledging receipt date, time and temperature and identity of samples including shipments	Yes
	Recording of holding times and a comparison with method specifications	Yes
	Analytical methods used, including any deviations	Yes
	Laboratory performance for the analytical method using inter-laboratory duplicates.	Yes
	Surrogates and spikes used throughout the full method process, or only in parts. Results are corrected for the recovery.	Yes
	A list of what spikes and surrogates were run with their recoveries and acceptance criteria	Yes
	Practical Quantification Limits (PQL)	N/A
	Reference Laboratory control sample (LCS) and check results	Yes
	Laboratory duplicate results	Yes
	Laboratory blank results	Yes
	Results are within control chart limits	Yes
	Evaluation of all quality assurance/quality control information listed above against the stated data quality objectives including a quality assurance/control data evaluation	Yes
Field and Analytical Results	Summary of Previous Results	Yes
	A table of analytical results that:	N/A
	Shows all essential details such as sample identification numbers and sampling depth	Yes
	Shows assessment criteria	Yes
	Highlights all results exceeding any assessment criteria	Yes

	Summary/discussion of the analytical results table	Yes
	Sample descriptions for all media where applicable (e.g. soil, sediment, surface water, groundwater, soil vapour, ground gas, indoor air and biota).	Yes
	Test pit or bore logs (well construction details where appropriate for example groundwater level expressed in Australian height datum)	Yes
	Site plan showing all sample locations	Yes
	Site plan(s) showing the extent of soil and groundwater contamination (if known)	Yes
Conclusions and Recommendations	Summary of all findings and discussion of results	Yes
	Conclusions addressing the stated objectives	Yes
	Assumptions used in reaching the conclusions	No
	Extent of uncertainties in the results (quantified where possible)	No
	A clear statement that the site is considered to be suitable for the proposed use	Yes
	A statement detailing the limitations and constraints on the use of the site	N/A
	Recommendations for further work (if appropriate)	Yes
References	References for all guidelines and previous investigations.	Yes