GEOTECHNIQUE® PTY LTD

ABN 64 002 841 063

DETAILED SITE INVESTIGATION

PROPOSED RESIDENTIAL SUBDIVISION

LOT 1 DP1298188, & LOT 1 DP524083
49 BLACKBUTTS ROAD AND
21A WARILI ROAD, FRENCHS FOREST

REPORT NO 20499/2-AA 16 APRIL 2024

Lemko Place, Penrith NSW 2750 PO Box 880, Penrith NSW 2751
Telephone (02) 4722 2700
E-mail: info@geotech.com.au www.geotech.com.au

GEOTECHNIQUE® PTY LTD

ABN 64 002 841 063

Job No: 20499/2
Our Ref: 20499/2-AA
16 April 2024

Willowtree Planning
Suite 204
Level 2, Meriton Tower
168 Walker Street
NORTH SYDNEY NSW 2060
Email: asher.richardson@willowtp.com.au

Attention: Mr A Richardson

Dear Sir

re: **Proposed Residential Subdivision**
Lot 1 DP1298188 & Lot 1 DP524083
49 Blackbutts Road and 21A Warili Road, Frenchs Forest
Detailed Site Investigation

Further to the preliminary site investigation (PSI) Report (Our Ref: 20499/1-AA dated 31 January 2024), prepared by Geotechnique Pty Ltd (Geotechnique), please find herewith our detailed site investigation (DSI) for the above site.

A brief of the outcome of the assessment was summarised in the Executive Summary.

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECHNIQUE PTY LTD

Author

MUBASHAR AHMED
Environmental Engineer
B.E (Chemical), MEng (Enviro)

Technical Reviewer

ANWAR BARBHUYIA
Senior Associate
B.E (Civil), MEngSc (Enviro), MIEAust

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EXECUTIVE SUMMARY

Further to the preliminary site investigation (PSI) Report (Our Ref: 20499/1-AA dated 31 January 2024), prepared by Geotechnique Pty Ltd (Geotechnique), this executive summary presents a synopsis of a detailed site investigation (DSI) for a parcel of land currently registered as Lot 1 DP1298188 and Lot 1 DP524083, located at 49 Blackbutts Road and 21A Warili Road, Frenchs Forest, in the local government area of Northern Beaches Council (hereafter referred as the site), indicated on Figure 1 (page 1 of the report).

It is understood that the site is proposed for subdivision into residential allotments.

The objective of the DSI was to supplement the PSI Report 20499/1-AA for the site with appropriate soil sampling and testing, to ascertain whether the site is likely to present a risk of harm to human health and/or the environment, and to determine the suitability of the site for the proposed residential subdivision development, in consideration of State Environmental Planning Policy (Resilience and Hazards, 2021-Chapter 4 Remediation of Land) under the Environmental Planning and Assessment Act 1979.

In order to achieve the objective of this assessment, the scope of work included review of the preliminary site investigation report, site reconnaissance, borehole drilling, soil sampling and testing, and preparation of this report.

The findings of this DSI are summarised as follows:

- The northern portion of the site used for what appeared to be disability community purposes, whilst the southern portion of the site occupied by disused large buildings, concrete hardstand area and car park. A small truck loading dock was noted in the central portion of the site.
- The general soil profile comprised imported fill materials or topsoil overlying natural clayey soil. The boreholes did not reveal any visual evidence of asbestos or other indicators of significant contamination, such as staining, odours or significant foreign matter. One fibro-cement piece was found on the ground surface at sample location FCP1, which does not contain asbestos containing materials.
- All the laboratory test results satisfied the criteria for stating that the analytes selected are either not present i.e., concentrations less than laboratory limits of reporting, or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under a “residential with access to soil” form of development,

Based on this assessment covering sampling and testing of soil at ten limited borehole locations, we consider that the site is suitable for the proposed subdivision into residential allotments, subject to sampling and testing of soils beneath the buildings, loading dock and concrete handstand area at twelve additional sampling locations after demolition and removal of the site features, to satisfy sampling requirement for a site area of 1.018 hectares (ha) as per NSW EPA (2022) Contaminated Land Guidelines - Sampling Design part 1 - application. If contamination is identified, appropriate remediation and validation will be required.
.

If any suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets/pieces/pipes, ash material, etc.) are encountered between the sampling locations during any stage of future earthworks/site preparation/demolitions, Unexpected Finds Management Protocol (Appendix C) should be implemented. In the event of contamination, detailed assessment, remediation and validation will be necessary.

Any materials to be excavated and removed from the site should be classified prior to disposal at an appropriately licensed landfill, or potential re-use at other sites, in accordance with:

- Waste Classification Guidelines Part 1: Classifying Waste (NSW EPA, 2014);
- NSW EPA resource recovery exemptions and orders under the Protection of the Environment Operations (Waste) Regulation 2014; or
- Protection of the Environment Operations Act 1997 (POEO Act), for Virgin Excavated Natural Material (VENM).

Any imported soil (fill) must be assessed by a qualified environmental consultant prior to importation, to ensure suitability for the proposed use. In addition, the imported fill must, not contain asbestos and ash, be free of unusual odour, not be discoloured and not be acid sulphate soil or potential acid sulphate soil. The imported fill should either be virgin excavated natural material (VENM) or excavated natural material (ENM).

Reference should be made to Section 16.0 of the report and Appendix D, which set out details of the limitations of the assessment.

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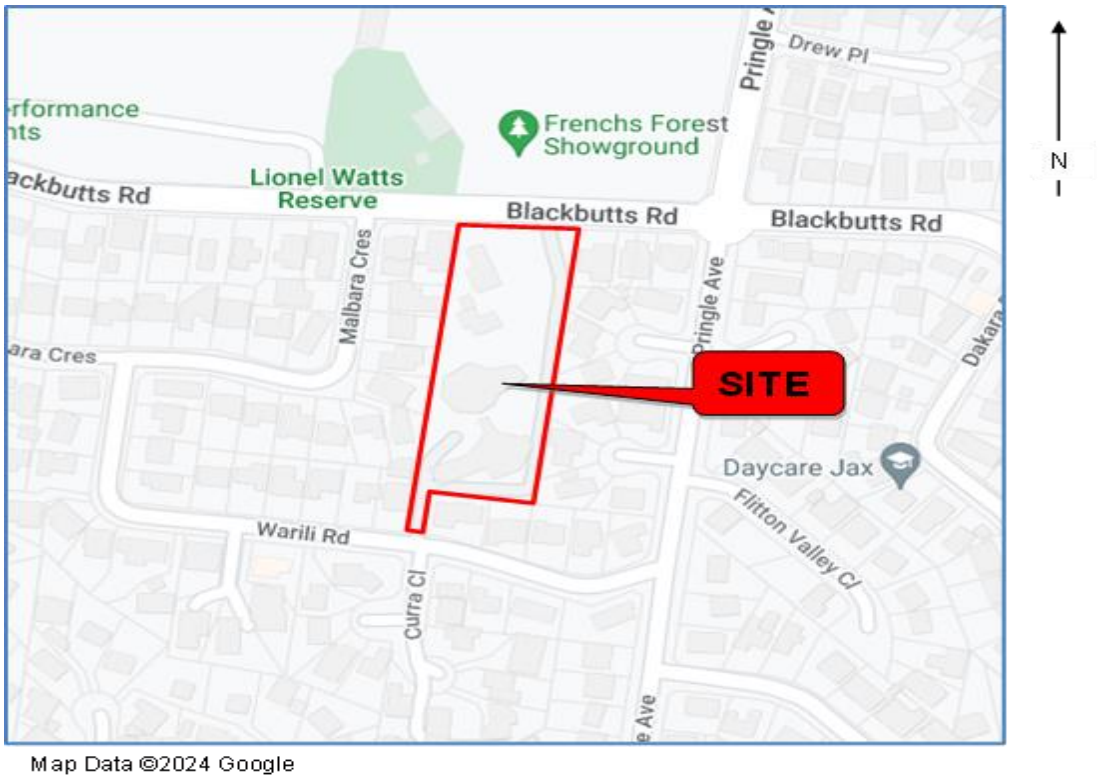
1.0 INTRODUCTION

Further to the preliminary site investigation (PSI) Report (Our Ref: 20499/1-AA dated 31 January 2024), prepared by Geotechnique Pty Ltd (Geotechnique) and as requested, we have completed detailed site investigation (DSI) for a parcel of land currently registered as Lot 1 DP1298188 and Lot 1 DP524083 located at 49 Blackbutts Road and 21A Warili Road, Frenchs Forest, in the local government area of Northern Beaches (hereafter known as the site), as indicated on Figure 1 below:

FIGURE 1



It is understood that the site is proposed for subdivision into residential allotments.

The objective of the DSI was to supplement the PSI Report 20499/1-AA for the site with appropriate soil sampling and testing, to ascertain whether the site is likely to present a risk of harm to human health and/or the environment., and to determine the suitability of the site for the proposed residential subdivision development, in consideration of State Environmental Planning Policy (Resilience and Hazards, 2021- Chapter 4 Remediation of Land) under the Environmental Planning and Assessment Act 1979.

This report was prepared generally in accordance with the NSW Environment Protection Authority (EPA), “Consultants Reporting on Contaminated Land" – 2020.

2.0 SCOPE OF WORK

To achieve the objectives of this assessment, the following scope of work was conducted in accordance with our fee proposal (Q20499-2R1) dated 12 February 2024:

- Review and summary of the *Preliminary Site Investigation* report prepared by Geotechnique in January 2024.
- An inspection by an Environmental Scientist for current site conditions and identification of any environmental concerns based on visual and olfactory indicators of potential contamination.
- In accordance with the NSW EPA (2022) Contaminated Land Guidelines - *Sampling Design part 1 - application*, samples should be recovered from twenty two locations across the site. As the about half of the site is covered with site features such as buildings and hardstand areas, 10 boreholes were adopted at this stage.
- Recovery of soil samples by using an excavator fitted with auger.
- Implementation of industry standard quality assurance (QA) and quality control (QC) measures. QC samples were also forwarded to the testing laboratories.
- Chemical analysis by National Association of Testing Authorities (NATA) accredited testing laboratories, in accordance with chains of custody (COC) prepared by Geotechnique.
- Assessment of the laboratory analytical results of soil samples against current applicable guidelines.
- Assessment of the contamination status of soil in the sampling locations.
- Preparation of this report

3.0 SITE INFORMATION

The site is located at 49 Blackbutts Road and 21A Warili Road, Frenchs Forest in the local government area of Northern Beaches Council and is registered as Lot 1 DP1298188 and Lot 1 DP524083.

As shown on Drawing No 20499/1-AA1, the site is irregular in shape, covering an area of approximately 1.018 hectares (ha). Reference may be made to Drawing No 20499/1-AA1 for lot layout.

During the inspection for the DSI, the site was comprising of large buildings of brick/concrete located in the southern and central portion of site. Cinder block buildings were present in the central portion and northern portion of the site. Small brick shed and concrete hardstand were noted in the southeastern corner and central portion of site respectively. Raised grass area was noted in the central portion of the site. High voltage electrical transformer was noted on the western boundary of the site and land remained almost unchanged as observed during PSI in January 2024, as shown on Drawing No 20499/1-AA1.

There was no petroleum hydrocarbon staining on the ground surface of the site that would indicate the potential for contamination. There were no signs of soil staining, plant distress or visible indicators of potential contamination. There were no olfactory indicators of potential contamination. There were no obvious features (bowsers, breather pipe, inlet valve and piping) associated with underground storage tanks.

The site is bound by Blackbutts Road & public showground to the north, Residential land to the east, Warili Road and residential land to the south and residential land to the west.

4.0 TOPOGRAPHY, GEOLOGY, SOIL LANDSCAPE, ACID SULFATE SOIL, HYDROLOGY & HYDROGEOLOGY

The site inspection by our Environmental Scientist revealed that in general, the site and surrounding land generally sloped towards the south.

The Soil Landscape Map of Sydney (Soil Landscape Series Sheet 9130, Scale 1:100,000, 2002), prepared by the Soil Conservation Service of NSW, indicates that the site is located within the Lambert soil landscape area and typically consists of highly permeable, highly erodible sub surface soils.

The Geological Map of Sydney (Geological Series Sheet 9130, Scale 1:100,000, 1983), published by the Department of Mineral Resources indicates the residual soils within the site to be underlain by Hawkesbury Sandstone comprising shale, and laminate.

Acid Sulphate Soil Risk Map (Edition 2, 1:25,000) of Hornsby-Mona Vale prepared by Department of Land and Water Conservation indicates there is no known occurrence of acid sulphate soil materials within the soil profiles at the site. In addition, there are not known occurrences of acid sulphate soils within about 500m of the site. Therefore, it is our assessment that acid sulphate soil risk at the site is ”Low” and earthworks (disturbance or excavation of soils) for proposed works can be carried out without an approved Acid Sulphate Soil Management Plan.

The closest waterbody to the site is Carrol Creek which is located about 375 metres to the south-west of the site. Due to observed topography on the site and surrounding land it may be possible that surface water run-off originating from the site may eventuate in the waterbody.

A site-specific groundwater analysis was outside the scope of this assessment. However, a search was carried out on 9 January 2024 through the website of Water NSW for any registered groundwater bore data within a radius of 500m of the site of the site as a part of PSI. The search revealed 1 bore to be located near the site.

The following information was obtained:

- GW107992 had a standing water level of 80.0m. The water bearing zone was from 25-29m, 85-88m, 136.5-138m, 179.5-183m and salinity of 105-137mg/L.

No groundwater was encountered during sampling to a maximum depth of about 1.0m below existing ground level. Groundwater in the site is anticipated to be in excess of 3.0m below existing ground surface. Groundwater flow is anticipated to be towards the south of the site.

5.0 SITE HISTORY INFORMATION

Geotechnique Pty Ltd (Geotechnique) carried out a review of site history information as part of the PSI. The review included historical aerial photographs, NSW Department of Lands records, Planning Certificates under Section 10.7 (2 & 5) of the Environmental Planning and Assessment Act 1979 and NSW EPA record of Notices for Contaminated Land and records of the POEO Public Register. For details, reference should be made to Report 20499/1-AA.

Aerial photographs reveal that the site and surrounding land to the east, west and south consisted of rural residential land prior to 1950 through to the 1960’s. The site may have been used for commercial purposes since at least 1970.

NSW Department of Lands records indicate that the site had been owned by private owners for residential purposes from 1966 to 1982, from 1982 to present day the site was owned by a community disability service provider.

The Section 10.7 (2 & 5) Planning Certificate indicates no issues arising under the Contaminated Land Management Act 1997.

A search of the NSW EPA records revealed no EPA Notices issued for the site. A search of the Protection of the Environment Operations (POEO) Public Register found no records for the site.

6.0 SUMMARY OF THE PSI REPORT

A PSI was carried out for the site currently registered as Lot 1 DP1298188 and Lot 1 DP524083 located at 49 Blackbutts Road and 21A Warili Road, Frenchs Forest in the local government area of Northern Beaches Council. The results were presented in the Geotechnique report *Preliminary Site Investigation* (Our Ref: 20499/1-AA dated 31 January 2024). It is understood that the site is proposed for a community title subdivision.

The objectives of the assessment are to identify any areas of potential contamination, and to assess if the site is likely to present a risk of harm to human health and the environment under the conditions of the proposed development.

In order to achieve the objectives, site reconnaissance and review of site historical and geological information were carried out.

An Environmental Scientist from Geotechnique inspected the site on 15 December 2023 as a part of PSI. The site was comprising of large buildings of brick/concrete located in the southern and central portion of site. Cinder block buildings were present in the central portion and northern portion of the site. Small brick shed and concrete hardstand were noted in the southeastern corner and central portion of site respectively. Raised grass area was noted in the central portion of the site. High voltage electrical transformer was noted on the western boundary of the site.

The site features are indicated on Drawing No 20499/1-AA1.

There was no petroleum hydrocarbon staining on the ground surface of the site that would indicate the potential for contamination. There were no signs of plant distress or visible indicators of potential contamination. There were no olfactory indicators of potential contamination. There were no obvious features (bowsers, breather pipe, inlet valve and piping) associated with underground storage tanks.

The site is bound by Blackbutts road & public showground to the north, residential land to the east, Warili Road and residential land to the south and residential land to the west.

Based on the information obtained in preparation of the report, it is considered that the site has potential for contamination due to past and present site activities.

Based on the assessment, Geotechnique considers that sampling and testing are required to address the potential contaminants listed in Section 7.0 of the report. If any contaminants are identified the site can be made suitable for the proposed development following successful remediation and validation.

7.0 CONCEPTUAL SITE MODEL (CSM)

Based on the initial CSM prepared during the PSI, the potential contamination sources and receptors and potential migration pathways between those sources and receptors have been identified.

7.1 Potential Areas of Environmental Concern

Based on the preceding sections, areas of environmental concern (AEC) and associated contaminants of potential concern have been identified and are presented in the following table.

Area of Environmental Concern & Associated Contaminants of Potential Concern

Potential AEC	Rational / Details	Potential Contaminants [1]
Buildings and sheds	Potential use of lead-based paints and possible pest control activities in the perimeter of the buildings and timber awning. Due to the age of the buildings, asbestos containing materials could be found in the buildings.	Arsenic and Lead Organochlorine Pesticides (OCP) Organophosphate Pesticides (OPP) Asbestos (for buildings)
GI features	In the surface soils surrounding the GI features there is potential for metals contamination due to degradation of building materials, such as GI sheets, paint (if painted with lead-based paint).	Lead and zinc
Driveway and truck loading dock	Possible seepage of any motor oil/fuel leaks through cracks in the concrete hardstand and bitumen driveway.	Metals Total Recoverable Hydrocarbons (TRH) Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX) Polycyclic Aromatic Hydrocarbons (PAH)
Imported Fill Materials	Imported fill materials were encountered within the site. There is potential for the fill materials to be contaminated, as the source of fill materials is generally unknown.	Metals TRH BTEX PAH OCP OPP Polychlorinated Biphenyls (PCB) Asbestos
Fibre-cement piece	Fibro-cement pieces may contain asbestos.	Asbestos
High voltage electrical transformer box	Use of transformer oils	PCB TRH BTEX PAH Phenols

[1] The suite of potential contaminants identified will be reviewed subject to the findings of the excavated materials and added to if considered appropriate.

Site was not used for activities which can generate potential Per and Poly-Fluoroalkyl Substances (PFAS).

7.2 Potentially Contaminated Media

Potentially contaminated media present at the site include:

- Fill, topsoil.
- Natural soil.

Based on the potential mobility of contaminants and their associated potential leachability through the soil/fill profile, vertical migration of contaminants from the soil into the underlying deeper natural soil might have occurred. As a result, the deeper natural soil is also considered to be potentially contaminated media.

Surface water is not identified as a potentially contaminated medium due to absence of any permanent waterbody within and near the site.

7.3 Potential Migration

Contaminants generally migrate from a site via a combination of windblown dust, rainwater infiltration, groundwater migration and surface water run-off. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics).
- The extent of the contaminants (isolated or widespread).
- The location of the contaminants (surface soils or at depth).
- The site topography, geology, hydrology, and hydrogeology.

Off-site impacts of contaminants in soil are generally governed by the transport media available and likely receptors. The most common transport medium is water, whilst receptors include initially uncontaminated soils, groundwater, surface waterbodies, humans, flora and fauna.

The site surface is primarily covered by hard stand and buildings. The potential for migration of contaminants via wind-blown dust is considered low because of the exposed soils within the site. The potential for migration of contamination via surface run-off is also expected to be minor. Some migration of contaminants via surface water may still occur in the event of heavy rain. Surface run-off would generally follow the topography, and part of surface run-off may eventuate in the adjoining southern property.

Sensitive receptors at the site under the current site conditions and in the immediate vicinity are considered to include site visitors who may come into contact with potentially contaminated media within the site.

8.0 DATA QUALITY OBJECTIVES

Data quality objectives (DQO) are qualitative and quantitative statements that specify the quality of the data required for the contamination assessment. DQO must ensure that the data obtained is sufficient to characterise the contamination on a site and enable appropriate assessment of health and environmental risks for the current or proposed use. The DQO were developed for this contamination assessment in accordance with the NSW EPA, Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd edition) and the NEPM 1999 (2013) Assessment of Site Contamination.

The project specific DQO process adopted consists of the following steps and is outlined as follows:

State the Problem
The northern portion of the site used for what appeared to be disability community purposes, whilst the southern portion of the site occupied by disused large buildings, concrete hardstand area and car park. A small truck loading dock was noted in the central portion of the site. The site also contains fill materials at most of the borehole locations. As a result, the potential exists for contamination to have occurred within the site in the past and presently.

It is understood that the site is proposed for subdivision into residential allotments.

The following key professional personnel were involved in the assessment;

Mr Anwar Barbhuyia	Senior Associate
Justin Hoffmann	Environmental Scientist

Identify the Decisions
The decisions to be made in completing the assessment are as follows;

- Does the site, or is the site, likely to present a risk of harm to human health or the environment?
- Is the site currently suitable for the proposed end use?
- Is there any potential for groundwater contamination?
- Are there any off-site migration issues to be considered?
- Is further investigation required to adequately address the abovementioned decisions?
- Is further investigation required to delineate the extent of contamination identified?
- Does the site require remediation to ensure suitability for the proposed end use?

Identify Inputs to the Decisions
The inputs into the decision process are as follows;

- Historical information (presented in Section 5.0).
- Site operations and observation details (presented in Section 3.0).
- Limited systematic and judgmental soil sampling over the open area of the site using an excavator fitted with auger.
- Soil profile information obtained through the sampling phase.
- Chemical and/or physical test data on analysed samples.
- Assessment of test data/data sets against applicable soil investigation levels in the NEPM 1999 (April 2013).

Define the Study Boundaries
The study boundary for this assessment is defined by the boundaries of the subject site, as shown on Drawing No 20499/2-AA1 and summarised in Section 3.0 of this report. The vertical limits of this investigation extend from surface level down to the deepest investigated borehole, at 1.0m below the existing ground level (EGL).

Develop a Decision Rule

The information obtained through this assessment will be used to characterise the site in terms of contamination issues and risk to human health and the environment. The decision rule in characterising the site will be as follows;

- Laboratory test results will be assessed individually.
- The assessment criteria are the NSW EPA produced and/or endorsed criteria, as specified in Section 13.0 of this report. For asbestos assessment, the assessed soil must not contain asbestos containing material (ACM) in excess of 0.01%w/w and surface soil within the site is free of visible ACM, and asbestos fines (AF) and fibrous asbestos (FA) in the soil is <0.001% w/w.
- The site will be deemed to potentially contain contamination "hot spots" if any of the individual concentrations exceed the assessment criteria adopted.
- Further investigation, remediation and/or management will be recommended if the site is found to be contaminated or containing contamination "hot spots".

Specify Limits on Decision Errors

The limits on decision errors for this assessment are as follows;

- The assessment criteria adopted from the guidelines stated in Section 13.0 have risk probabilities already incorporated.
- The acceptable limits for field and inter-laboratory duplicate (split) comparisons are outlined in Sections 10.5 and 10.6 of this report.
- The acceptance limits for laboratory QA and QC parameters are based on the laboratory reported acceptance limits and those stated in the NEPM 1999 (April 2013) "*Guideline on Laboratory Analysis of Potentially Contaminated Soils*".

Laboratory test results will only be accepted and considered useable for this assessment under the following conditions;

- All laboratories used are accredited by NATA for the analyses undertaken.
- All detection limits set by the laboratories fall below the assessment criteria adopted.
- Analyte concentrations in the rinsate water sample should be less than laboratory limits of reporting or should not be detected significantly (refer to Section 10.3).
- The recovery of spike concentrations in the trip spike sample is sufficient so as not to affect the reported concentrations of the soil samples when the same recovery is applied (BTEX only) (refer to Section 10.4).
- The differences between the reported concentrations of analytes in the field duplicate samples and the corresponding original samples are within accepted limits (refer to Section 10.5).
- The differences between the reported concentrations of analytes in the inter-laboratory duplicate (split) samples and the corresponding original samples are within accepted limits (refer to Section 10.6).

Optimise the Design for Obtaining Data

- The procedures adopted for location and collection of environmental samples were developed prior to implementation, in accordance with NSW EPA guidelines and current industry practice. The sampling program as detailed below was designed to ensure integrity of data collection during the assessment, including decontamination techniques, sample labelling, storage and chain of custody protocols;
  - Limited systematic and judgemental soil sampling over the open area site covering almost 50% of the required sampling number as per NSW EPA (2022) Contaminated Land Guidelines - *Sampling Design part 1 – application.*
- The analytical program was developed prior to undertaking the sampling (based on site history, site activities and site features) and refined on the basis of field observations (both surface and sub-surface) during the sampling phase. All potential contaminants in the accessible part of the site have been covered.
- Only laboratories accredited by NATA for the analyses undertaken were used for this assessment. The laboratory performance is assessed through review of statistics calculated for QA samples such as blanks, spikes, duplicates and surrogates.
- The field QA and QC protocols adopted are outlined in Section 10.0 of this report. The QA and QC program incorporates preparation of traceable documentation of procedures used in the sampling and analytical program and in data validation procedures.

Data Quality Indicators
The performance of the assessment in achieving the DQO will be assessed through the application of Data Quality Indicators (DQI), defined as follows:

Precision	A quantitative measure of the variability (or reproducibility) of data;
Accuracy	A quantitative measure of the closeness of reported data to the “true” value;
Representativeness	The confidence (expressed qualitatively) that data is representative of each media present on the site;
Completeness	A measure of the amount of useable data from a data collection activity;
Comparability	The confidence (expressed qualitatively) that data can be considered equivalent for each sampling and analytical event.

Assessment of the data quality indicators is presented in Section 9.0 (sampling) and Section 12.0 (analysis) of this report.

9.0 SAMPLING & ANALYSIS PLAN AND SAMPLING METHODOLOGY

As part of the DSI, systematic and judgmental sampling BH1 to BH10 in the site was carried out on 15 March 2024, by an Environmental Scientist from Geotechnique, responsible for visually assessing the site, positioning the sample locations as close as possible to nominated locations, recovery of soil samples, preparation of samples for delivery to NATA accredited laboratories and logging the sub-surface profile encountered at each sample location.

Boreholes are shown on Drawing No 20499/2-AA1.

The sampling procedures adopted were as follows:

- The boreholes were drilled using an excavator fitted with auger, over the depth interval nominated by the Environmental Scientist. The representative soil sample was recovered directly from auger by using disposal gloves.
- The auger was decontaminated prior to use in order to prevent cross contamination (refer to Section 10.3 for details of the procedures for decontamination of the auger).
- To minimise the potential loss of volatiles, the laboratory soil sample was immediately transferred to a labelled, laboratory supplied, 250ml glass jar and sealed with an airtight, Teflon screw top lid. The fully filled jar was then placed in a chilled container.
- The recovered soil sample and fibro-cement piece for asbestos analysis, transferred into separate small plastic zip-lock bag, which was placed in a container.

To measure the reproducibility of test results, duplicate and split samples were prepared for analyses. Samples were kept in a labelled laboratory supplied glass jars (acid-washed and solvent-rinsed) and sealed with airtight screw top Teflon lids. The fully filled jars were placed in a chilled container.

A rinsate water sample was collected and placed in a glass bottle and vial supplied by the laboratory at the completion of field works. The fully filled bottle and vial were labelled and placed in a chilled container.

At completion of field sampling, the chilled containers and container were transported to our Penrith office. The chilled container was then transferred to a refrigerator where the temperature was maintained below 4°C.

The primary samples and QA / QC samples, in the chilled containers, were forwarded under COC conditions to the primary testing laboratory of SGS Environmental Services (SGS). Inter-laboratory duplicate (split) sample was forwarded in a chilled container to the secondary testing laboratory of Envirolab Services Pty Ltd (Envirolab). For asbestos testing, selected soil and fibro-cement piece in the container was sent to Australian Safer Environment & Technology Pty Ltd (ASET). SGS, Envirolab and ASET are National Association of Testing Authorities (NATA) accredited.

On receipt of the samples and COC, the laboratories returned the Sample Receipt Confirmation, verifying the integrity of all samples received.

Reference should be made to Table 1 in Appendix A for descriptions of the soils encountered during sampling for this assessment using an excavator fitted with auger. Based on information from the sample locations, the sub-surface profile across the site is generalised as follows:

Topsoil	Silty Clay, low plasticity, brown, with root fibres, was encountered in BH2 and BH5 to a depth of 200mm below the existing ground level (EGL), underlain by natural clayey soil.
Fill Material	Three types of fill material were encountered: Type 1: Silty Sand, fine grained, grey to brown, trace of gravel, was encountered to a depth of 200mm in BH1 and BH6, underlain by natural clayey soil. Type 2: Silty Clay, low plasticity, brown, was encountered in BH4, BH7, BH8 and FCP1 to a depth of 100mm to 400mm below the EGL underlain by natural clayey soil. Type 3: Sandy Clay, medium plasticity, grey mottled with red, was encountered in BH9 and BH10 to a depth of 150mm to 400mm below the EGL underlain by natural clayey soil.

Natural Soil	Two types of fill material were encountered: Type 1: Sandy CLAY, medium plasticity, orange. Natural soil was encountered beneath the topsoil/fill in most of the site and on the surface layer at BH3. Type 2: Silty CLAY, medium plasticity, brown. Natural soil was encountered beneath the fill material at BH10.

There were no obvious ash materials, fibro-cement pieces and odour in the boreholes. One fibro-cement piece was found on the ground surface at sample location FCP1.

As a result, and generally based on the potential for contamination, topsoil, surface and deeper natural soil samples were analysed for Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc). Samples were also analysed for Organochlorine Pesticides (OCP) and Organophosphate Pesticides (OPP) for screening purposes. Topsoil samples, one surface natural soil sample and one selected deeper natural soil sample were also analysed for Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAH), and Polychlorinated Biphenyls (PCB) and Phenols for screening purposes. Two topsoil samples were also analysed for asbestos for screening purposes.

All fill samples were analysed for Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRH, BTEX, PAH, OCP, OPP, PCB, Phenols and asbestos.

Fibro-cement piece and surface soil sample at FCP1 were tested for asbestos.

One bitumen sample from the car park was tested for coal tar.

In addition, the following samples were recovered / prepared and analysed:

- A number of samples covering each type of soil were selected for analysis of pH and Cation Exchange Capacity (CEC).
- One Rinsate sample was analysed for Metals, TRH, BTEX and PAH.
- One Trip Spike sample was analysed for BTEX.
- One (1) Duplicate sample and 1 split sample were analysed for Metals, TRH, BTEX, PAH, OCP, OP and PCB.

The following table provides a list of the data quality indicators (refer to Section 9.0) for the soil sampling phase of the assessment and the methods adopted in ensuring that the data quality indicators were met.

DATA QUALITY INDICATOR	METHOD(S) OF ACHIEVEMENT
Completeness	Systematic and judgemental soil sampling at predetermined locations, spacing and depths; Par of the soils of concern (potential contamination) sampled; On site visual assessment of soils uncovered; Preparation of sample location plan; Records of borehole logs; Field duplicate sample numbers complying with NEPM; Inter-laboratory duplicate (split) numbers complying with NEPM; Rinsate sample recovered at the completion of field works; Preparation of chain of custody records.

DATA QUALITY INDICATOR	METHOD(S) OF ACHIEVEMENT
Comparability	Using appropriate techniques for sample recovery. Appropriate industry standard decontamination procedures adopted (Section 10.2). Experienced samplers used. Using appropriate sample storage and transportation methods.
Representativeness	Limited sampling coverage of site; systematic and judgemental sample numbers comply about 50% of NSW EPA sampling design guidelines, as the remaining half of the site is covered with site features such as buildings and hardstand areas. Representative coverage of potential contaminants in the site based on site history, site activities, site features and the presence of fill materials.
Precision and Accuracy	Rinsate blank water, trip spike, field duplicate, and inter-laboratory duplicate / split samples recovered or prepared (Section 10.3 to 10.6).

10.0 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

10.1 Sampling Personnel

Geotechnique undertook all the sampling associated with this assessment. An Environmental Scientist from Geotechnique (Justin Hoffman) nominated sampling positions based on the project brief prepared by the Project Manager and site conditions, supervised (full time) the drilling of the boreholes, logged the soil profile encountered, recovered soil samples at a frequency determined by the sampling plan (project brief), carried out in-situ PID screening of fill samples and packed the samples (refer to Section 9.0).

Mr Hoffman has a Bachelor of Environmental Science degree and has been employed by Geotechnique as an Environmental Scientist since 2015. At commencement of employment, Mr Hoffman underwent supervised training in Geotechnique procedures for sampling and logging.

10.2 Decontamination Procedures

As stated in Section 9.0 of this report, soil sampling was carried out using an excavator fitted with auger. Disposable gloves were used to transfer the soil sample from the auger to the laboratory supplied glass jar and plastic bag. Auger was decontaminated prior to use. Decontamination of the auger involved the following:

- Removal of soils adhering to the auger by scrubbing with a brush;
- Washing the auger thoroughly in a solution of phosphate free detergent (Decon 90) using brushes and disposable towels;
- Rinsing the auger thoroughly with distilled water;
- Repeating the washing / rinsing steps and rinsing with water;
- Drying the auger with a clean cloth.

A sample of the final rinsate water sample was recovered at completion of sampling.

10.3 Rinsate

One rinsate water sample (RS1) was recovered on completion of field work in order to identify possible cross contamination between the sampling locations.

The rinsate water samples were analysed for Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRH, BTEX and PAH. The test results for the rinsate water samples are summarised in Table A. The laboratory test results certificates are included in Appendix B.

As indicated in Table A concentrations of Metals in the rinsate blank samples were less than the laboratory detection limits, which indicates that adequate decontamination had been carried out in the field.

10.4 Trip Spikes

Trip spike sample was obtained from the laboratory on a regular basis, prior to conducting field sampling where volatile substances are suspected. The samples are held in the Penrith office of Geotechnique, at less than 4°C, for a period of not more than fourteen days. During the field work, the trip spike sample was kept in the chilled container with soil samples recovered from the site. The trip spike sample was then forwarded to the primary laboratory together with the soil samples recovered from the site.

The trip spike is prepared by the laboratory by adding a known amount of a pure petrol standard to a clean sand sample. The sample is mixed thoroughly to ensure a relatively homogenous distribution of the spike throughout the sample. When the sample is submitted for analysis, the same procedure is adopted for testing as the soil samples being analysed from the site.

The purpose of the trip spike is to detect any loss, or potential loss, of volatiles from the soil samples, during field work, transportation, sample extraction or testing.

One trip spike sample (TS1) was forwarded to the primary analytical laboratory with the samples collected from the site and tested for BTEX. The test results for the trip spike sample, reported as a percentage recovery of the applied and known spike concentrations, are shown in Table B. A copy of the laboratory analytical report is included in Appendix B.

As indicated in Table B, the results show a good recovery of the spike concentrations, ranging between 96% and 103%, which were within the acceptable ranges (60% - 130%). Furthermore, all the BTEX results for the soil samples analysed were less than laboratory detection limits and there was no visible or olfactory indication of hydrocarbon contamination.

Based on the above, it is considered that any loss of volatiles from the recovered samples that might have occurred would not affect the outcome / conclusion of this report.

10.5 Duplicate Sample

A field duplicate sample was prepared in the field through the following processes:

- A larger than normal quantity of soil was recovered from the sample location selected for duplication.
- The sample was placed in a decontaminated stainless bowl and divided into two portions using the decontaminated trowel.
- One portion of the sub-sample was immediately transferred using the decontaminated trowel into a labelled, laboratory supplied, 250ml glass jar and sealed with an airtight Teflon screw top lid. The fully filled jar was labelled as the duplicate sample and immediately placed in a chilled container.
- The remaining portion was stored in the same way and labelled as the original sample.

Duplicate samples were prepared on the basis of sample numbers recovered during the field work. The duplicate sample frequency was computed using the total number of samples analysed as part of this assessment. The duplicate sample frequencies computed are as follows:

- Metals 15 samples analysed; 1 duplicate; 6.7% frequency
- TRH & BTEX 11 samples analysed; 1duplicate; 9.1% frequency
- PAH & PCB 11 samples analysed; 1 duplicate; 9.1% frequency
- OCP & OPP 15 samples analysed; 1 duplicate; 6.7% frequency

The duplicate frequency adopted complies with the Schedule B3 Guideline on Laboratory Analysis of Potentially Contaminated Soils of the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (April 2013), which recommends a duplicate frequency of at least 5%.

The duplicate sample test results are presented with the analytical reports in Appendix B and summarised in Table C.

A comparison was made of the laboratory test results for the duplicate samples with the original samples and the Relative Percentage Differences (RPD) were computed to assess the accuracy of the laboratory test procedures. RPD within 30% are generally considered acceptable. However, this variation can be higher for low concentrations of analytes or non-homogeneous samples.

As shown in Table C, the comparisons between the duplicate and corresponding original sample indicated generally acceptable RPD, with the exception of RPD for a few metals and one TRH. This is considered to be due to the non-homogeneous nature of the soil samples.

All the concentrations with RPD in excess of 30% in the duplicate pairs were both less than the relevant assessment criteria.

Based on the above, the variations are not considered critical. Based on the overall duplicate sample numbers and comparisons, it is concluded that the laboratory test data provided by SGS are of adequate accuracy and reliability for this assessment.

10.6 Inter-laboratory Duplicate (Split) Sample

The inter-laboratory duplicate (split) sample provides a check on the analytical performance of the primary laboratory. The split sample was prepared in the same manner as the duplicate sample. Reference should be made to Section 10.5. The split sample was prepared on the basis of sample numbers recovered during field work and the analyses undertaken by the primary laboratory. Split sample was submitted for analysis to a secondary laboratory (Envirolab).

The split sample frequency was computed using the total number of samples analysed as part of this assessment. The split sample frequencies computed are as follows:

- Metals 15 samples analysed; 1 split ; 6.7% frequency
- TRH & BTEX 11 samples analysed; 1 split ; 9.1% frequency
- PAH & PCB 11 samples analysed; 1 split ; 9.1% frequency
- OCP & OPP: 15 samples analysed; 1 split; 6.7% frequency

The split sample frequency adopted complies with the Schedule B3 of the NEPM 1999 (April 2013), which recommends a frequency of 5%.

The laboratory certificates of analysis from Envirolab are included in Appendix B of this report. The results are also summarised in Table D.

Based on Schedule B3 of the NEPM 1999 (April 2013), the difference in the results between the split samples should generally be within 30% of the mean concentration determined by both laboratories, i.e., RPD should be within 30%. However, this variation can be higher for low concentrations of analytes or non-homogeneous samples.

As shown in Table D, the comparisons between the split and corresponding original sample indicated generally acceptable RPD, with the exception of RPD for a few metals. This is considered to be due to the non-homogeneous nature of the soil samples analysed.

All the concentrations with RPD in excess of 30% in the split pairs were both less than the relevant assessment criteria.

Based on the above, the variations are not considered critical. Based on the overall split sample numbers and comparisons, it is concluded that the test results provided by the primary laboratory are deemed reliable for this assessment.

11.0 LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL

Geotechnique uses only laboratories accredited by the NATA for chemical analyses. The laboratory must also incorporate quality laboratory management systems to ensure trained analysts using validated methods and suitably calibrated equipment to produce reliable results.

In addition to the quality control samples, the laboratory must also ensure that all analysts receive certification as to their competence in carrying out the analysis and participate in national and international proficiency studies.

SGS and Envirolab are both accredited by NATA and operate a Quality System designed to comply with ISO/IEC 17025. For asbestos testing, ASET was also used for this assessment which is accredited by NATA and operates a Quality System designed to comply with ISO / IEC 17025.

The recovered discrete soil samples were analysed within the allowable holding times detailed in Schedule B3 of the NEPM 1999 (April 2013). It should be noted that there is no specific holding time for asbestos analysis. The rinsate sample was analysed within the allowable holding times for water detailed in Standard Methods for the Examination of Water and Wastewater (APHA).

The test methods adopted by the laboratory are indicated with the laboratory test results certificates in Appendix B. As part of the analytical run for the project the laboratory included laboratory blanks, duplicate samples, laboratory control samples, matrix spikes and/or surrogate spikes.

We have checked the QA/QC procedures and results adopted by the laboratories against the appropriate guidelines. The quality control sample numbers adopted by SGS and Envirolab are considered adequate for the analyses undertaken.

The methods used by SGS, Envirolab and ASET have been validated as recommended in the NEPM and ANZECC guidelines and endorsed by NATA.

The samples analysed for TPH (C_6–C_9) and/or BTEX were extracted by the purge and trap method recommended by the NSW EPA.

All reported laboratory LOR / Practical Quantitation Limits (PQL) were less than the assessment criteria adopted for each analyte or analyte group.

Overall, the quality control elements adopted by SGS and Envirolab indicate that the analytical data falls within acceptable levels of accuracy and precision for analysis of soil. The analytical data provided is therefore considered to be reliable and useable for this assessment.

12.0 QA/QC DATA EVALUATION

The following table provides a list of the data quality indicators for the analytical phase of the assessment and the methods adopted in ensuring that the data quality indicators were met.

DATA QUALITY INDICATOR	METHOD(S) OF ACHIEVEMENT
Data Completeness	Laboratory sample receipt information received confirming receipt of samples intact and appropriate chain of custody. Analysis for all relevant potential contaminants of concern in the limited sampling locations. NATA registered laboratory analytical reports / certificates of analysis provided.
Data Comparability	Use of NATA registered laboratories. Test methods consistent for each sample. Test methods comparable between primary and secondary laboratory. Acceptable Relative Percentage Differences between original samples and field duplicates and inter-laboratory duplicate / split samples.
Data Representativeness	Representative coverage of potential contaminants in the site based on site history, site activities, site features and the presence of fill materials. Adequate duplicate, split and rinsate sample numbers. Adequate laboratory internal quality control and quality assurance methods, complying with the NEPM.
Data Precision and Accuracy	Acceptable concentrations in rinsate blank water sample. Acceptable recoveries of spike concentrations in trip spike sample. Acceptable RPD for duplicate comparison overall. Acceptable RPD for inter-laboratory duplicate / split sample comparison overall. Appropriate and validated laboratory test methods used. Adequate laboratory performance based on results of the blank samples, duplicates, control samples and/or matrix spike samples.

Based on the above, it is considered that both laboratories complied with the quality assurance and quality control data quality indicators. As such, it is concluded that the laboratory test data obtained are reliable and useable for this assessment.

13.0 ASSESSMENT CRITERIA

Investigation levels and screening levels developed in the NEPM 2013 were used in this assessment, as follows:

- Risk-based Health Investigation Levels (HIL) for a broad range of metals and organic substances. The HIL are applicable for assessing human health risk via all relevant pathways of exposure. The HIL as listed in Table 1A (1) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" are provided for different land uses.

  It is understood that the site is proposed for subdivision into residential allotments. As such, with regard to human health, analytical results will be assessed against risk based HIL for *residential with garden/accessible soil* (HIL A).

- Health Screening Levels (HSL) for TRH fractions and Naphthalene are applicable for assessing human health risk via inhalation pathway. The HSL depend on specific soil physicochemical properties, land use scenarios and the characteristics of building structures. The HSL listed in Table 1A(3) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" apply to different soil types and depths below surface to >4m.

  For this assessment, the analytical results were assessed against the available HSL for *residential with garden/accessible soil* (HSL A) for clay to depth of 0m to <1m and sand to depth of 0m to <1m.

- Ecological Screening Levels (ESL) for selected petroleum hydrocarbon compounds, TRH fractions and Benzo(a)Pyrene are applicable for assessing the risk to terrestrial ecosystems. ESL listed in Table 1B(6) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" broadly apply to coarse and fine-grained soils and various land uses and are generally applicable to the top 2m of soil.

  The analytical results were assessed against the available ESL for *urban residential* for fine-grained soil (clay) and for coarse-grained soil (sand).

- Ecological Investigation Levels (EIL), a specific type of Soil Quality Guidelines (SQG) for selected metals, are applicable for assessing the risk to terrestrial ecosystems. EIL listed in Table 1B(1-5) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2m of soil. For arsenic and lead, generic EIL are adopted, for *urban residential* land use for aged contamination. For other metals, where available, EIL are calculated using the EIL calculator developed by CSIRO for NEPC.

  For this assessment, the analytical results were assessed against the available SQG / EIL for *urban residential* land use for aged contamination in soil for low traffic volume.

  For DDT and Naphthalene, generic EIL are adopted, for *urban residential* land use for fresh contaminants.

For discrete soil samples, the individual concentrations of analytes were assessed against the HIL A / HSL A / ESL / EIL.

For asbestos, the assessed soil must not contain asbestos containing material (ACM) in excess of 0.01%w/w, surface soil within the site is free of visible asbestos containing material (ACM), and asbestos fines (AF) and fibrous asbestos (FA) in the soil is <0.001% w/w.

The site will be deemed contaminated or containing contamination “hot spots” if the above criteria are unfulfilled. Further investigation, remediation and/or management will be recommended if the area of concern is found to be contaminated or containing contamination “hot spots”.

The adopted assessment criteria for the soil samples are detailed in Tables E1, E2 and F to I.

14.0 FIELD & LABORATORY TEST RESULTS, ASSESSMENT & DISCUSSION

14.1 Field Results

Details of the sub-surface conditions encountered during field work for this assessment are presented in Table 1 in Appendix A of this report. As discussed in Section 9.0 the general soil profile comprised fill materials overlying natural clayey soil. Topsoil overlying natural clayey soil was encountered at two locations. Natural soil was encountered on the surface at one location.

The boreholes did not reveal any visual evidence of asbestos or other indicators of significant contamination, such as staining, odours or significant foreign matter. One fibro-cement piece was found on the ground surface at sample location FCP1. However, laboratory testing confirmed no ACM in the fibro-cement piece.

14.2 Analytical Results

Reference may be made to Appendix B for the actual laboratory test results certificates. The test results are also presented in Tables E1 and E2 and F to J together with the assessment criteria adopted. A discussion of the test data is presented in the following sub-sections.

14.2.1 Metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn)

Test results of CEC and pH were adopted to calculate ecological investigation levels (EIL) in Tables E1 and E2.

The Metals test result for all discrete topsoil and two types of fill and natural soil samples are presented in Table E1 and Metals test results of remaining third type of fill samples are presented in Table E2.

The Metals test results indicated that all concentrations of Metals were below the relevant available EIL and Health Investigation Levels (HIL) for residential development with garden/accessible soil (HIL A).

14.2.2 Total Recoverable Hydrocarbons (TRH) and BTEX

The TRH and BTEX test results for all discrete fill and topsoil samples and selected natural soil samples are presented in Table F. As shown in Table F, the concentrations of F1 TRH, F2 TRH, F3 TRH, F4 TRH and BTEX were below the relevant HSL A and / or ESL adopted. Moreover, all BTEX and most of the TRH concentrations were below the laboratory limits of reporting (LOR).

There was no HSL A (not limiting) for clay for Ethyl Benzene.

14.2.3 Polycyclic Aromatic Hydrocarbons (PAH)

The PAH test results for all discrete fill and topsoil samples and selected natural soil samples are presented in Table G and as shown, concentrations of Benzo(a)pyrene, Benzo(a)pyrene TEQ, Naphthalene and Total PAH were below the relevant HIL A or ESL or HSL A or EIL adopted. Moreover, all PAH concentrations were either equal or below the laboratory LOR.

14.2.4 Organochlorine Pesticides (OCP)

The OCP test results for all discrete fill, topsoil natural soil samples are presented in Table H and as indicated, all concentrations of OCP were well below the relevant HIL A. Concentrations of DDT were also below the EIL. Moreover, all test results were below the laboratory limits of reporting (LOR).

14.2.5 Organophosphate Pesticides (OPP)

The OPP test results for all discrete fill, topsoil natural soil samples are presented in Table H and as indicated, concentrations of Chlorpyrifos were well below the relevant HIL A and less than laboratory LOR.

14.2.6 Polychlorinated Biphenyls (PCB)

The PCB test results for all discrete fill and topsoil samples and selected natural soil samples are presented in Table H and as shown, the concentrations of PCB were below the HIL A and less than laboratory LOR.

14.2.7 Phenols

The Phenols analytical results for all discrete fill and topsoil samples and selected natural soil samples are presented in Table H, and as shown, concentrations of Phenols were below the relevant HIL A adopted and the laboratory LOR.

14.2.8 Asbestos

The asbestos test results for the discrete fill and topsoil samples are presented in Table I and as indicated, no ACM in excess of 0.01%w/w were found and also no AF and FA in excess of 0.001%w/w were found in the analysed soil samples.

14.2.9 Coal Tar

The results for the presence of coal tar in one selected bitumen sample is presented in Table J and as indicated, coal tar was absent in the analysed sample.

15.0 CONCLUSION AND RECOMMENDATIONS

The data quality objectives outlined in the report have been satisfied. The findings of this detailed site investigation are summarised as follows:

- The northern portion of the site used for what appeared to be disability community purposes, whilst the southern portion of the site occupied by disused large buildings, concrete hardstand area and car park. A small truck loading dock was noted in the central portion of the site.
- The general soil profile comprised imported fill materials or topsoil overlying natural clayey soil. The boreholes did not reveal any visual evidence of asbestos or other indicators of significant contamination, such as staining, odours or significant foreign matter. One fibro-cement piece was found on the ground surface at sample location FCP1, which does not contain asbestos containing materials.
- As presented in summary tables (Tables E1, E2 and F to J) and discussed in Section 14.2, all the laboratory test results satisfied the criteria for stating that the analytes selected are either not present i.e., concentrations less than laboratory limits of reporting, or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under a “residential with access to soil” form of development.

Based on this assessment covering sampling and testing of soil at ten limited borehole locations, we consider that the site is suitable for the proposed subdivision into residential allotments, subject to sampling and testing of soils beneath the buildings, loading dock and concrete handstand area at twelve additional sampling locations after demolition and removal of the site features, to satisfy sampling requirement for a site area of 1.018 hectares (ha) as per NSW EPA (2022) Contaminated Land Guidelines - Sampling Design part 1 - application. If contamination is identified, appropriate remediation and validation will be required".

If any suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets/pieces/pipes, ash material, etc.) are encountered between the sampling locations during any stage of future earthworks/site preparation/demolitions, Unexpected Finds Management Protocol (Appendix C) should be implemented. In the event of contamination, detailed assessment, remediation and validation will be necessary.

Any materials to be excavated and removed from the site should be classified prior to disposal at an appropriately licensed landfill, or potential re-use at other sites, in accordance with:

- Waste Classification Guidelines Part 1: Classifying Waste (NSW EPA, 2014);
- NSW EPA resource recovery exemptions and orders under the Protection of the Environment Operations (Waste) Regulation 2014; or
- Protection of the Environment Operations Act 1997 (POEO Act), for Virgin Excavated Natural Material (VENM).

Any imported soil (fill) must be assessed by a qualified environmental consultant prior to importation, to ensure suitability for the proposed use. In addition, the imported fill must, not contain asbestos and ash, be free of unusual odour, not be discoloured and not be acid sulphate soil or potential acid sulphate soil. The imported fill should either be virgin excavated natural material (VENM) or excavated natural material (ENM).

16.0 LIMITATIONS

Within the scope of work outlined in our fee proposal (Q20499-2R1) dated 12 February 2024, the services performed by Geotechnique in preparing this report were conducted in a manner consistent with the level of quality and skill generally exercised by members of the profession and consulting practice.

To the best of our knowledge, all information obtained and contained in this report is true and accurate. No further investigation has been carried out to authenticate the information provided. Supporting documentation was obtained where possible, some of which is contained in this report.

This report has been prepared for Willowtree Planning for the purposes stated within. Northern Beaches Council may rely on the report for development and/or building application determinations. Reliance on this report by other parties shall be at such parties' sole risk as the report might not contain sufficient information for other purposes.

This report shall only be presented in full and may not be used to support any objective other than those set out in the report, except where written approval is provided by Geotechnique Pty Ltd.

The information in this report is considered accurate at completion of field sampling for this assessment (15 March 2024) in accordance with current site conditions. Any variations to the site form or use beyond the sampling date could nullify the conclusions stated.

Whilst investigations conducted at the site were carried out in accordance with current NSW guidelines the potential always exists for contaminated soils to be present between sampled locations.

Presented in Appendix D is a document entitled "Environmental Notes", which should be read in conjunction with this report.

LIST OF REFERENCES

Contaminated Land Management Act 1997

Contaminated Land Management Regulation 1998

Contaminated Sites: Consultants Reporting on Contaminated Land – NSW Environment Protection Authority 2020

Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd Edition) –NSW EPA 2017

Contaminated Sites: Sampling Design Part 1- Application - NSW Environment Protection Authority 2022

Geology of Sydney 1:100,000 Sheet (9130) – Geological Survey of New South Wales, Department of Minerals and Energy 1983

National Environment Protection (Assessment of Site Contamination) Measure – National Environmental Protection Council (NEPM) 1999 (April 2013)

Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A – The Excavated Natural Material Exemption & Order 2014

Soil Landscape of Sydney 1:100,000 Sheets (9130) – Soil Conservation Service Survey of NSW 2002

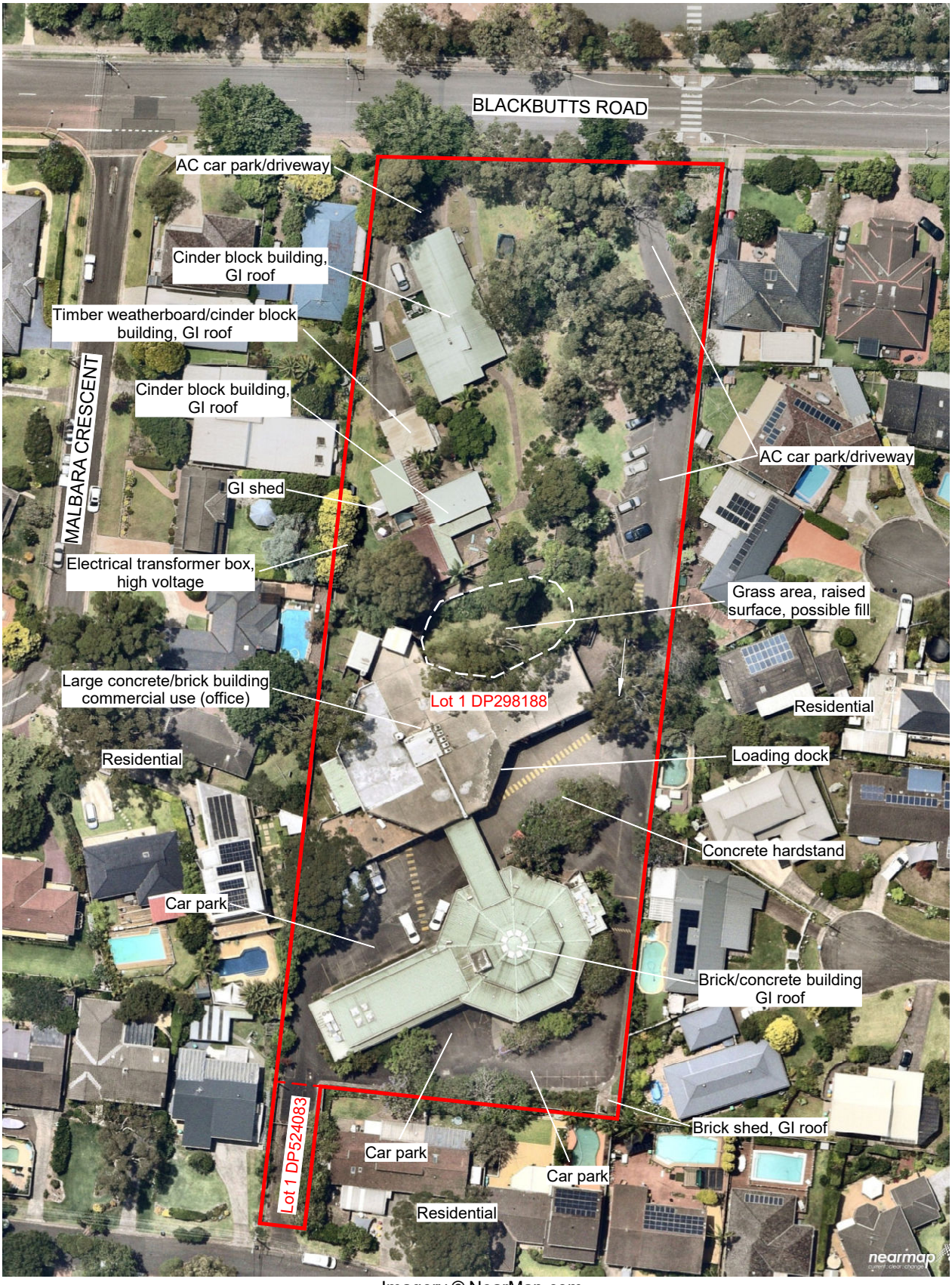
State Environmental Planning Policy (Resilience and Hazards, 2021) under the Environmental Planning and Assessment Act 1979

Standard Methods for the Examination of Water and Wastewater – American Public Health Association (APHA) 2017

Waste Classification Guidelines Part 1: Classifying Waste - NSW DECC (November 2014)

DRAWINGS

Drawing No 20499/1-AA1	*Lot Layout and Site Features*
Drawing No 20499/2-AA1	*Borehole and Sample Locations*



Imagery © NearMap.com

LEGEND

Slope

0 10 20 30 40 50m

Scale 1:1000

GEOTECHNIQUE® PTY LTD

PO Box 880
Penrith NSW 2750
Tel: 02 4722 2700

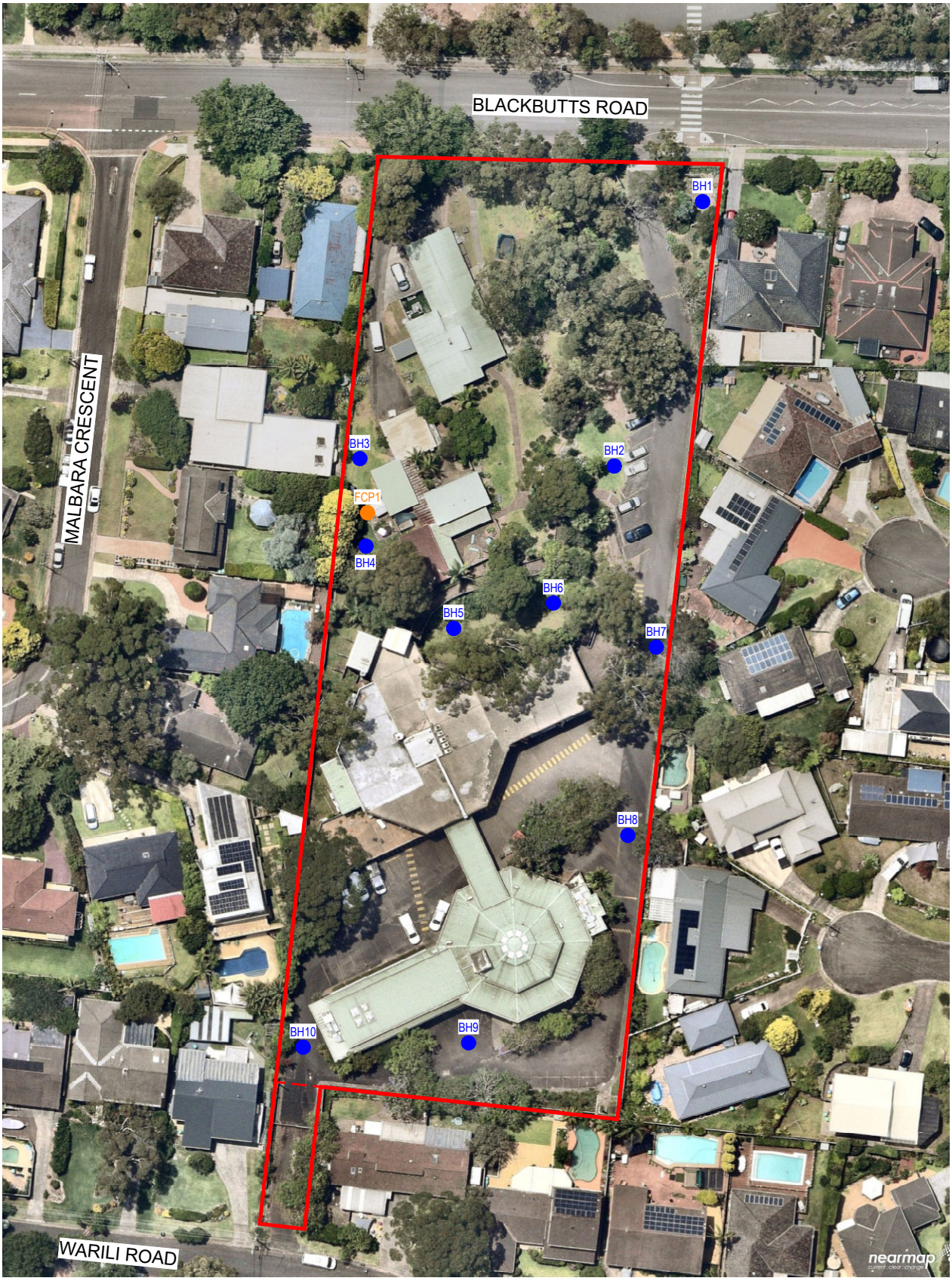
e-mail:info@geotech.com.au
www.geotech.com.au

Willowtree Planning
Proposed Community Title Subdivision
49 Blackbutts Road
Frenchs Forest

Lot Layout and Site Feature Plan

Drawing No: 20499/1-AA1
Job No: 20499/1
Drawn By: MH
Date: 1 February 2024
Checked By: JH

File No: 20499-1
Layers: 0, AA1



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LEGEND

- Borehole
- Sample

0 10 20 30 40 50m

Scale 1:1000

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PO Box 880
Penrith NSW 2750
Tel: 02 4722 2700

e-mail:info@geotech.com.au
www.geotech.com.au

Willowtree Planning
Proposed Community Title Subdivision
49 Blackbutts Road & 21A Warili Road
Frenchs Forest

Borehole and Sample Locations

Drawing No: 20499/2-AA1
Job No: 20499/2
Drawn By: MH
Date: 19 March 2024
Checked By: JH

File No: 20499-2
Layers: 0, AA1

TABLES

Table A	*Rinsate*
Table B	*Trip Spike*
Table C	*Duplicate Sample*
Table D	*Split Samples*
Tables E1 & E2	*Metals, Cation Exchange Capacity (CEC) & pH Test Results – Discrete Samples*
Table F	*Total Recoverable Hydrocarbons (TRH) and BTEX Test Results – Discrete Samples*
Table G	*Polycyclic Aromatic Hydrocarbons (PAH) Test Results – Discrete Samples*
Table H	*Organochlorine Pesticides (OCP), Organophosphate Pesticides (OPP) & Polychlorinated Biphenyls (PCB) Test Results–Discrete Samples*
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Table J	*Coal Tar Test Result – Discrete Bitumen Sample*

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TABLE A
RINSATE
(Ref No: 20499/2-AA)

SAMPLE	RS1
DATE	15/03/2024
METAL	**(mg/L)**
Arsenic	<0.02
Cadmium	<0.001
Chromium	<0.005
Copper	<0.005
Lead	<0.02
Mercury	<0.0001
Nickel	<0.005
Zinc	<0.01
TOTAL RECOVERABLE HYDROCARBON (TRH)	**(µg/L)**
F1 (C6-C10 less BTEX)	<50
F2 (>C10-C16)	<60
F3 (>C16-C34)	<500
F4 (>C34-C40)	<500
BTEX	**(µg/L)**
Benzene	<0.5
Toluene	<0.5
Ethyl Benzene	<0.5
Xylenes	<1.5
POLYCYCLIC AROMATIC HYDROCARBON (PAH)	**(µg/L)**
Total PAH	<1
Naphthalene	<0.1
Benzo(a)Pyrene	<0.1

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TABLE B
TRIP SPIKE
(Ref No: 20499/2-AA)

Sample	Sampling Date	BTEX			
		Benzene	Toluene	Ethylbenzene	Xylenes
TS1	15/03/2024	98%	101%	102%	103%

Note : results are reported as percentage recovery of known spike concentrations

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TABLE C
DUPLICATE SAMPLE
(Ref No: 20499/2-AA)

ANALYTE	BH1 0.0-0.15 (m) mg/kg	DDS1 mg/kg	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
Arsenic	2	2	0
Cadmium	<0.3	<0.3	-
Chromium	13	9	36
Copper	27	19	35
Lead	23	16	36
Mercury	<0.05	<0.05	-
Nickel	2.1	1.9	10
Zinc	32	22	37
TOTAL RECOVERABLE HYDROCARBONS (TRH)			
F1 (C6-C10 less BTEX)	<25	<25	-
F2 (>C10-C16)	75	<25	-
F3 (>C16-C34)	290	200	37
F4 (>C34-C40)	<120	<120	-
BTEX			
Benzene	<0.1	<0.1	-
Toluene	<0.1	<0.1	-
Ethyl Benzene	<0.1	<0.1	-
Xylenes	<0.3	<0.3	-
POLYCYCLIC AROMATIC HYDROCARBONS			
Benzo(a)Pyrene TEQ	<0.3	<0.3	-
Total PAH	<0.1	<0.1	-
Naphthalene	<0.1	<0.1	-
Benzo(a)Pyrene	<0.1	<0.1	-
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.15	-
Endrin	<0.1	<0.1	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	<0.1	-
Endosulfan (alpha, beta & sulphate)	<0.3	<0.3	-
DDD+DDE+DDT	<0.6	<0.6	-
Chlordane (alpha & gamma)	<0.2	<0.2	-
ORGANOPHOSPHATE PESTICIDES (OPP)			
Chlorpyrifos (Chlorpyrifos Ethyl)	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<1	<1	-

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TABLE D
SPLIT SAMPLE
(Ref No: 20499/2-AA)

ANALYTE	BH7 0.1-0.25 (m) mg/kg (SGS)	DSS1 mg/kg (ENVIROLAB)	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
Arsenic	4	8	67
Cadmium	<0.3	<0.4	-
Chromium	24	45	61
Copper	0.9	1	11
Lead	12	17	34
Mercury	<0.05	<0.1	-
Nickel	0.8	1	22
Zinc	15	16	6
TOTAL RECOVERABLE HYDROCARBONS (TRH)			
F1 (C6-C10 less BTEX)	<25	<25	-
F2 (>C10-C16)	<25	<50	-
F3 (>C16-C34)	140	160	13
F4 (>C34-C40)	<120	<100	-
BTEX			
Benzene	<0.1	<0.2	-
Toluene	<0.1	<0.5	-
Ethyl Benzene	<0.1	<1	-
Xylenes	<0.3	<1	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
Benzo(a)Pyrene TEQ	<0.3	<0.5	-
Total PAH	<0.1	<0.05	-
Naphthalene	<0.1	<0.1	-
Benzo(a)Pyrene	<0.1	<0.05	-
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.2	-
Endrin	<0.1	<0.1	-
Methoxychlor	<0.1	<0.1	-
Endosulfan (alpha (I), beta (II) & sulphate)	<0.3	<0.3	-
DDD+DDE+DDT	<0.6	<0.1	-
Chlordane (alpha & gamma)	<0.2	<0.2	-
ORGANOPHOSPHATE PESTICIDES (OPP)			
Chlorpyriphos	<0.2	<0.1	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<1	<0.1	-

GEOTECHNIQUE PTY LTD

TABLE E1
METAL, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES
(Ref No: 20499/2-AA)

Sample Location	Depth (m)	METAL (mg/kg) ARSENIC	CADMIUM	CHROMIUM (Total)	COPPER	LEAD	MERCURY	NICKEL	ZINC	CEC ($cmol_c/kg$)	pH
BH1	0.0-0.15	2	<0.3	13	27	23	<0.05	2.1	32	16	5.9
BH1	0.25-0.35	2	<0.3	27	1.8	7	<0.05	1.1	9	1.2	5.4
BH2	0.0-0.15	4	<0.3	35	13	40	0.09	3.4	52	12	7.2
BH3	0.0-0.15	3	<0.3	52	9.7	10	<0.05	3.1	65	5.5	6.8
BH4	0.0-0.15	3	<0.3	22	6.5	21	<0.05	2.3	21	7.9	6.7
BH4	0.45-0.55	2	<0.3	23	<0.5	12	<0.05	0.8	9	5.3	6
BH5	0.0-0.15	4	<0.3	9.9	11	18	<0.05	2.7	46	9.4	6.7
BH6	0.0-0.15	4	<0.3	8.3	15	16	<0.05	3.8	60	9.6	6.3
BH7	0.1-0.25	4	<0.3	24	0.9	12	<0.05	0.8	15	6.5	6.2
BH7	0.55-0.65	5	<0.3	25	<0.5	12	<0.05	<0.5	10	3.3	5.7
BH8	0.05-0.2	2	<0.3	21	<0.5	8	<0.05	0.7	10	3.5	6.1
BH8	0.35-0.45	2	<0.3	16	2.5	23	<0.05	1.6	26	11	7
BH10	0.55-0.65	3	<0.3	12	<0.5	8	<0.05	0.6	7	1.7	6
Limit of Reporting (LOR)		1	0.3	0.5	0.5	1	0.05	0.5	2	0.02	0.1
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)											
Health-based Investigation Levels (HIL) [a] A - Residential A		100	20	100 [c]	6000	300	10 [d]	400	7400		
Ecological Investigation Levels (EIL) [b]- Urban residential		100 [e]	-	190[f]	40	1200 [g]	-	6	140		

Notes:
a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres,
b: EIL of aged chromium (III), copper, nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; Old Suburb with Low Traffic; the lowest CEC=1.2 cmolc/kg & pH=5.4; the assumed clay content=1 % were selected for derivation of EIL; a conservative approach.

c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III)
g: Generic added contaminant limit for aged lead + ambient background concentration; Old Suburb with Low Traffic.

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TABLE E2
METAL, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES
(Ref No: 20499/2-AA)

Sample Location	Depth (m)	METAL (mg/kg) ARSENIC	CADMIUM	CHROMIUM (Total)	COPPER	LEAD	MERCURY	NICKEL	ZINC	CEC ($cmol_c/kg$)	pH
Fill (Sandy Clay)											
BH9	0.1-0.25	2	<0.3	34	4.9	9	<0.05	8.4	44	88	10.1
BH10	0.1-0.25	3	<0.3	7.9	1.2	4	<0.05	0.6	5	6.3	7.8
Limit of Reporting (LOR)		1	0.3	0.5	0.5	1	0.05	0.5	2	0.02	0.1
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)											
Health-based Investigation Levels (HIL) [a] A - Residential A		100	20	100 [c]	6000	300	10 [d]	400	7400		
Ecological Investigation Levels (EIL) [b]- Urban residential		100 [e]	-	190[f]	250	1200 [g]	-	480	1400		

Notes:
a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools
b: EIL of aged chromium (III), copper, nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; Old Suburb with Low Traffic; the average CEC=47.15 cmolc/kg & pH=8.95; the assumed clay content=1 % were selected for derivation of EIL; a conservative approach.

c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III)
g: Generic added contaminant limit for aged lead + ambient background concentration; Old Suburb with Low Traffic.

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TABLE F
TOTAL RECOVERABLE HYDROCARBONS (TRH) AND BTEX TEST RESULTS
DISCRETE SAMPLES
(Ref No: 20499/2-AA)

											NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)																			
											Health Screening Levels (HSL) A Low density residential						Ecological Screening Levels for fine-grained soil Urban residential								Ecological Screening Levels for coarse-grained soil Urban residential							
			TRH (mg/kg)					BTEX (mg/kg)																							
Sample Location	Depth (m)	Soil type	F1	F2*	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2*	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES
BH1	0.0-0.15	Sand	<25	75	75	290	<120	<0.1	<0.1	<0.1	<0.3	45	110	0.5	160	55	40	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH2	0.0-0.15	Clay	<25	<25	<25	200	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH3	0.0-0.15	Clay	<25	<25	<25	170	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH4	0.0-0.15	Clay	<25	<25	<25	160	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH5	0.0-0.15	Clay	<25	<25	<25	150	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH6	0.0-0.15	Sand	<25	<25	<25	160	<120	<0.1	<0.1	<0.1	<0.3	45	110	0.5	160	55	40	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH7	0.1-0.25	Clay	<25	<25	<25	140	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH8	0.05-0.2	Clay	<25	<25	<25	130	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH9	0.1-0.25	Clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH10	0.1-0.25	Clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH10	0.55-0.65	Clay	<25	<25	<25	260	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
Limit of Reporting (LOR)			25	25	25	90	120	0.1	0.1	0.1	0.3																						

Notes:
F1: C6-C10 less BTEX
F2*: >C10-C16 less Naphthalene
F2**: >C10-C16
F3: >C16-C34
F4: >C34-C40
NL: Not Limiting

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TABLE G

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) TEST RESULTS

DISCRETE SAMPLES

(Ref No: 20499/2-AA)

							NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)				
			PAH (mg/kg)				Health-based Investigation Levels (HIL) A - Residential A[a]		Health Screening Level (HSL) A - Low density residential	Generic Ecological Investigation Level (EIL) - Urban residential	Ecological Screening Level (ESL) - Urban residential
Sample Location	Depth (m)	Soil type	BaP TEQ	TOTAL PAHs	NAPHTHALENE	BENZO(a)PYRENE (BaP)	BaP TEQ	TOTAL PAHs	NAPHTHALENE	NAPHTHALENE	BENZO(a)PYRENE (BaP)
BH1	0.0-0.15	Sand	<0.3	<0.1	<0.1	<0.1	3	300	3	170	0.7
BH2	0.0-0.15	Clay	<0.3	0.1	<0.1	<0.1	3	300	5	170	0.7
BH3	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
BH4	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
BH5	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
BH6	0.0-0.15	Sand	<0.3	<0.1	<0.1	<0.1	3	300	3	170	0.7
BH7	0.1-0.25	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
BH8	0.05-0.2	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
BH9	0.1-0.25	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
BH10	0.1-0.25	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
BH10	0.55-0.65	Clay	<0.3	<0.1	<0.1	<0.1	3	300	5	170	0.7
Limit of Reporting (LOR)			0.3	0.1	0.1	0.1					

Notes: a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.

NL: Not Limiting

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TABLE H

ORGANOCHLORINE PESTICIDES (OCP), ORGANOPHOSPHATE PESTICIDES (OPP) & POLYCHLORINATED BIPHENYLS (PCB) TEST RESULTS

DISCRETE SAMPLES

(Ref No: 20499/2-AA)

		OCP (mg/kg)										(mg/kg)	(mg/kg)
Sample Location	Depth (m)	HEXACHLOROBENZENE (HCB)	HEPTACHLOR	ALDRIN+DIELDRIN	ENDRIN	METHOXYCHLOR	MIREX	ENDOSULFAN (alpha, beta & sulphate)	DDD+DDE+DDT	DDT	CHLORDANE (alpha & gamma)	Chlorpyrifos (Chlorpyrifos Ethyl)	PCB
BH1	0.0-0.15	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH1	0.25-0.35	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	-
BH2	0.0-0.15	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH3	0.0-0.15	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH4	0.0-0.15	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH4	0.45-0.55	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	-
BH5	0.0-0.15	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH6	0.0-0.15	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH7	0.1-0.25	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH7	0.55-0.65	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	-
BH8	0.05-0.2	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH8	0.35-0.45	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	-
BH9	0.1-0.25	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH10	0.1-0.25	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
BH10	0.55-0.65	<0.1	<0.1	<0.15	<0.1	<0.1	<0.1	<0.3	<0.6	<0.2	<0.2	<0.2	<1
Limit of Reporting (LOR)		0.1	0.1	0.15	0.1	0.1	0.1	0.3	0.6	0.2	0.2	0.2	1
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)													
Health-based Investigation Levels (HIL) A [a] - Residential A		10	6	6	10	300	10	270	240		50	160	1
Ecological Investigation Levels (EIL) - Urban residential										180 [b]			

Notes: a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.

b: Generic EIL for DDT

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TABLE I
ASBESTOS TEST RESULTS
DISCRETE SAMPLES
(Ref No: 20499/2-AA)

Sample Location	Depth (m)	ASBESTOS (% w/w)		
Soil Sample		Bonded ACM (>7mm)	AF	FA
BH1	0.0-0.15	<0.01	<0.001	<0.001
BH2	0.0-0.15	<0.01	<0.001	<0.001
BH4	0.0-0.15	<0.01	<0.001	<0.001
BH5	0.0-0.15	<0.01	<0.001	<0.001
BH6	0.0-0.15	<0.01	<0.001	<0.001
BH7	0.1-0.25	<0.01	<0.001	<0.001
BH8	0.1-0.25	<0.01	<0.001	<0.001
BH9	0.1-0.25	<0.01	<0.001	<0.001
BH10	0.1-0.25	<0.01	<0.001	<0.001
FCP1	0.0-0.1	<0.01	<0.001	<0.001
Limits of Reporting (LOR)		0.01	0.001	0.001
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)				
Health Screening Levels [a] - Residential A		-	0.001	0.001
Fibro-cement Piece				
FCP1		No ACM		

Notes: ACM: Asbestos Containing Material
AF: Asbestos Fines
FA: Fibrous Asbestos
a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.

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TABLE J

COAL TAR TEST RESULTS

DISCRETE BITUMEN SAMPLE

(Ref No: 20499/2-AA)

Sample	Depth (m)	Coal Tar
BH10	0.0-0.1	Absent

APPENDIX A

TABLE 1 – BOREHOLE LOGS

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Project:	Proposed Community Title Subdivision Development	**Job No:**	20499/2	
Location:	Lot 1 DP1298188 & Lot 1 DP524083 - 49 Blackbutts Road and 21A Warili Road, Frenchs Forest	**Drawing No:**	20499/2-AA1	Page 1 of 1
		Logged & Sampled by:	JH	

Table 1

Test Pit	Depth (m)	Sample Depth (m)	Date	Material Description	Remarks*
BH1	0.0-0.2	0.0-0.15	15/03/2024	FILL: Silty Sand, fine grained, grey to brown, trace of gravel	
	0.2-0.7	0.25-0.35		(Cl) Sandy CLAY, medium plasticity, orange	
BH2	0.0-0.2	0.0-0.15	15/03/2024	TOPSOIL: Silty Clay, low plasticity, brown, trace of root fibres	
	0.2-0.5	N.S		(Cl) Sandy CLAY, medium plasticity, orange	
BH3	0.0-0.5	0.0-0.15	15/03/2024	(Cl) Sandy CLAY, medium plasticity, orange	Trace of root fibres
BH4	0.0-0.4	0.0-0.15	15/03/2024	FILL: Silty Clay, low plasticity, brown	
	0.4-0.9	0.45-0.55		(Cl) Sandy CLAY, medium plasticity, orange	
BH5	0.0-0.2	0.0-0.15	15/03/2024	TOPSOIL: Silty Clay, low plasticity, brown, trace of root fibres	
	0.2-0.5	N.S		(Cl) Sandy CLAY, medium plasticity, orange	
BH6	0.0-0.2	0.0-0.15	15/03/2024	FILL: Silty Sand, fine grained, grey to brown, trace of gravel	
BH7	0.0-0.03	NS	15/03/2024	Asphalt Concrete hardstand	
	0.03-0.1	NS		concrete	
	0.1-0.5	0.1-0.25		FILL: Silty Clay, low plasticity, brown	
	0.5-1.0	0.55-0.65		(Cl) Sandy CLAY, medium plasticity, orange	
BH8	0.0.-0.05	NS	15/03/2024	Asphalt Concrete hardstand	
	0.05-0.3	0.05-0.2		FILL: Silty Clay, low plasticity, brown	
	0.3-0.8	0.35-0.45		(Cl) Sandy CLAY, medium plasticity, orange	
BH9	0.0-0.1	NS	15/03/2024	Asphalt Concrete hardstand	
	0.1-0.25	0.1-0.25		FILL: Sandy Clay, medium plasticity, grey mottled with red	
BH10	0.0-0.1	0.0-0.1	15/03/2024	Asphalt Concrete hardstand	
	0.1-0.5	0.1-0.25		FILL: Sandy Clay, medium plasticity, grey mottled with red	
	0.5-1.0	0.55-0.65		(Cl) Silty CLAY, medium plasticity, brown	
FCP1	0.0-0.1	0.0-0.1	15/03/2024	FILL: Silty Clay, low plasticity, brown	Fibro cement piece on surface

NS = No Sample

*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

APPENDIX B

LABORATORY TEST RESULTS REPORTS/CERTIFICATES

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**20499/2 Frenchs Forest**
Order Number	**20499/2**
Samples	18

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE262389 R0**
Date Received	18/3/2024
Date Reported	22/3/2024

COMMENTS

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

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Inorganic/Metals Chemist

Teresa NGUYEN
Organic Chemist

Ying Ying ZHANG
Laboratory Technician

VOC's in Soil [AN433] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007
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	0.3	<0.3	<0.3	<0.3	<0.3	<0.3

PARAMETER	UOM	LOR	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014
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	0.3	<0.3	<0.3	<0.3	<0.3	<0.3

PARAMETER	UOM	LOR	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015	DDS1 SAND - 15/3/2024 SE262389.016	TS1 SOIL - 15/3/2024 SE262389.018
Benzene	mg/kg	0.1	<0.1	<0.1	[98%]
Toluene	mg/kg	0.1	<0.1	<0.1	[101%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	[102%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	[103%]
o-xylene	mg/kg	0.1	<0.1	<0.1	[104%]
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-
Total BTEX*	mg/kg	0.3	<0.3	<0.3	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007
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	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014
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	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015	DDS1 SAND - 15/3/2024 SE262389.016
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: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007
TRH C10-C14	mg/kg	20	59	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	160	110	100	100	90
TRH C29-C36	mg/kg	45	180	120	100	85	94
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	75	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	75	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	290	200	170	160	150
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	400	230	200	190	180
TRH >C10-C40 Total (F bands)	mg/kg	210	360	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	93	67	90	<45	<45
TRH C29-C36	mg/kg	45	96	99	60	<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	160	140	130	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	190	170	150	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015	DDS1 SAND - 15/3/2024 SE262389.016
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	120	110
TRH C29-C36	mg/kg	45	180	140
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	260	200
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	300	240
TRH >C10-C40 Total (F bands)	mg/kg	210	260	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007
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(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
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*	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Total PAH (NEPM/WHO 16)	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014
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(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
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*	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PAH (NEPM/WHO 16)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 19/3/2024 (continued)

PARAMETER	UOM	LOR	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015	DDS1 SAND - 15/3/2024 SE262389.016
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(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2
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*	mg/kg	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.1	<0.1	<0.1
Total PAH (NEPM/WHO 16)	mg/kg	0.1	<0.1	<0.1

OC Pesticides in Soil [AN420] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH1 CLAY 0.25-0.35 15/3/2024 SE262389.002	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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
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
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total Other OC VIC EPA	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: 19/3/2024 (continued)

PARAMETER	UOM	LOR	BH4 CLAY 0.45-0.55 15/3/2024 SE262389.006	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH7 CLAY 0.55-0.65 15/3/2024 SE262389.010
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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
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
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total Other OC VIC EPA	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: 19/3/2024 (continued)

PARAMETER	UOM	LOR	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH8 CLAY 0.35-0.45 15/3/2024 SE262389.012	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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
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
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total Other OC VIC EPA	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: 19/3/2024 (continued)

PARAMETER	UOM	LOR	DDS1 SAND - 15/3/2024 SE262389.016
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	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1
o,p'-DDD*	mg/kg	0.1	<0.1
o,p'-DDT*	mg/kg	0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.05	<0.05
Endrin	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1
Total Other OC VIC EPA	mg/kg	1	<1
Total OC VIC EPA	mg/kg	1	<1

OP Pesticides in Soil [AN420] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH1 CLAY 0.25-0.35 15/3/2024 SE262389.002	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005
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	BH4 CLAY 0.45-0.55 15/3/2024 SE262389.006	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH7 CLAY 0.55-0.65 15/3/2024 SE262389.010
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	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH8 CLAY 0.35-0.45 15/3/2024 SE262389.012	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015
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: 19/3/2024 (continued)

PARAMETER	UOM	LOR	DDS1 SAND - 15/3/2024 SE262389.016
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7

PCBs in Soil [AN420] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007
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	<1.0	<1.0	<1.0	<1.0	<1.0

PARAMETER	UOM	LOR	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014
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	<1.0	<1.0	<1.0	<1.0	<1.0

PARAMETER	UOM	LOR	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015	DDS1 SAND - 15/3/2024 SE262389.016
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	<1.0	<1.0

pH in soil (1:5) [AN101] Tested: 21/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH1 CLAY 0.25-0.35 15/3/2024 SE262389.002	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005
pH	pH Units	0.1	5.9	5.4	7.2	6.8	6.7

PARAMETER	UOM	LOR	BH4 CLAY 0.45-0.55 15/3/2024 SE262389.006	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH7 CLAY 0.55-0.65 15/3/2024 SE262389.010
pH	pH Units	0.1	6.0	6.7	6.3	6.2	5.7

PARAMETER	UOM	LOR	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH8 CLAY 0.35-0.45 15/3/2024 SE262389.012	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015
pH	pH Units	0.1	6.1	7.0	10.1	7.8	6.0

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 21/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH1 CLAY 0.25-0.35 15/3/2024 SE262389.002	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	13	0.83	11	4.4	6.5
Exchangeable Calcium Percentage*	%	0.1	80.3	67.9	91.5	80.1	83.3
Exchangeable Potassium, K	cmol (+)/kg	0.01	0.23	0.06	0.10	0.23	0.19
Exchangeable Potassium Percentage*	%	0.1	1.4	4.5	0.8	4.1	2.5
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	2.8	0.31	0.75	0.78	0.96
Exchangeable Magnesium Percentage*	%	0.1	17.2	24.9	6.3	14.2	12.2
Exchangeable Sodium, Na	cmol (+)/kg	0.01	0.17	0.03	0.16	0.09	0.16
Exchangeable Sodium Percentage*	%	0.1	1.1	2.7	1.4	1.5	2.1
Cation Exchange Capacity	cmol (+)/kg	0.02	16	1.2	12	5.5	7.9

PARAMETER	UOM	LOR	BH4 CLAY 0.45-0.55 15/3/2024 SE262389.006	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH7 CLAY 0.55-0.65 15/3/2024 SE262389.010
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	4.6	8.6	8.1	4.8	2.1
Exchangeable Calcium Percentage*	%	0.1	85.7	90.7	84.1	74.1	62.6
Exchangeable Potassium, K	cmol (+)/kg	0.01	0.10	0.07	0.10	0.11	0.09
Exchangeable Potassium Percentage*	%	0.1	1.9	0.8	1.0	1.7	2.7
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	0.53	0.68	1.3	1.0	0.67
Exchangeable Magnesium Percentage*	%	0.1	9.9	7.2	13.2	15.5	20.0
Exchangeable Sodium, Na	cmol (+)/kg	0.01	0.13	0.12	0.16	0.57	0.49
Exchangeable Sodium Percentage*	%	0.1	2.5	1.3	1.7	8.7	14.7
Cation Exchange Capacity	cmol (+)/kg	0.02	5.3	9.4	9.6	6.5	3.3

PARAMETER	UOM	LOR	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH8 CLAY 0.35-0.45 15/3/2024 SE262389.012	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	2.8	9.8	87	5.7	1.2
Exchangeable Calcium Percentage*	%	0.1	80.3	89.6	99.3	91.4	68.4
Exchangeable Potassium, K	cmol (+)/kg	0.01	0.04	0.14	0.38	0.13	0.12
Exchangeable Potassium Percentage*	%	0.1	1.2	1.3	0.4	2.1	7.1
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	0.32	0.49	0.10	0.28	0.20
Exchangeable Magnesium Percentage*	%	0.1	9.0	4.5	0.1	4.4	11.7
Exchangeable Sodium, Na	cmol (+)/kg	0.01	0.33	0.51	0.17	0.13	0.22
Exchangeable Sodium Percentage*	%	0.1	9.5	4.6	0.2	2.1	12.7
Cation Exchange Capacity	cmol (+)/kg	0.02	3.5	11	88	6.3	1.7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH1 CLAY 0.25-0.35 15/3/2024 SE262389.002	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005
Arsenic, As	mg/kg	1	2	2	4	3	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	13	27	35	52	22
Copper, Cu	mg/kg	0.5	27	1.8	13	9.7	6.5
Lead, Pb	mg/kg	1	23	7	40	10	21
Nickel, Ni	mg/kg	0.5	2.1	1.1	3.4	3.1	2.3
Zinc, Zn	mg/kg	2	32	9	52	65	21

PARAMETER	UOM	LOR	BH4 CLAY 0.45-0.55 15/3/2024 SE262389.006	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH7 CLAY 0.55-0.65 15/3/2024 SE262389.010
Arsenic, As	mg/kg	1	2	4	4	4	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	23	9.9	8.3	24	25
Copper, Cu	mg/kg	0.5	<0.5	11	15	0.9	<0.5
Lead, Pb	mg/kg	1	12	18	16	12	12
Nickel, Ni	mg/kg	0.5	0.8	2.7	3.8	0.8	<0.5
Zinc, Zn	mg/kg	2	9	46	60	15	10

PARAMETER	UOM	LOR	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH8 CLAY 0.35-0.45 15/3/2024 SE262389.012	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015
Arsenic, As	mg/kg	1	2	2	2	3	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	21	16	34	7.9	12
Copper, Cu	mg/kg	0.5	<0.5	2.5	4.9	1.2	<0.5
Lead, Pb	mg/kg	1	8	23	9	4	8
Nickel, Ni	mg/kg	0.5	0.7	1.6	8.4	0.6	0.6
Zinc, Zn	mg/kg	2	10	26	44	5	7

PARAMETER	UOM	LOR	DDS1 SAND - 15/3/2024 SE262389.016
Arsenic, As	mg/kg	1	2
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.5	9.0
Copper, Cu	mg/kg	0.5	19
Lead, Pb	mg/kg	1	16
Nickel, Ni	mg/kg	0.5	1.9
Zinc, Zn	mg/kg	2	22

Mercury in Soil [AN312] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH1 CLAY 0.25-0.35 15/3/2024 SE262389.002	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005
Mercury	mg/kg	0.05	<0.05	<0.05	**0.09**	<0.05	<0.05

PARAMETER	UOM	LOR	BH4 CLAY 0.45-0.55 15/3/2024 SE262389.006	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH7 CLAY 0.55-0.65 15/3/2024 SE262389.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH8 CLAY 0.35-0.45 15/3/2024 SE262389.012	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	DDS1 SAND - 15/3/2024 SE262389.016
Mercury	mg/kg	0.05	<0.05

Moisture Content [AN002] Tested: 19/3/2024

PARAMETER	UOM	LOR	BH1 SAND 0.0-0.15 15/3/2024 SE262389.001	BH1 CLAY 0.25-0.35 15/3/2024 SE262389.002	BH2 CLAY 0.0-0.15 15/3/2024 SE262389.003	BH3 CLAY 0.0-0.15 15/3/2024 SE262389.004	BH4 CLAY 0.0-0.15 15/3/2024 SE262389.005
% Moisture	%w/w	1	14.1	9.9	18.8	16.0	12.4

PARAMETER	UOM	LOR	BH4 CLAY 0.45-0.55 15/3/2024 SE262389.006	BH5 CLAY 0.0-0.15 15/3/2024 SE262389.007	BH6 SAND 0.0-0.15 15/3/2024 SE262389.008	BH7 CLAY 0.1-0.25 15/3/2024 SE262389.009	BH7 CLAY 0.55-0.65 15/3/2024 SE262389.010
% Moisture	%w/w	1	15.1	11.3	12.8	8.2	8.5

PARAMETER	UOM	LOR	BH8 CLAY 0.05-0.2 15/3/2024 SE262389.011	BH8 CLAY 0.35-0.45 15/3/2024 SE262389.012	BH9 CLAY 0.1-0.25 15/3/2024 SE262389.013	BH10 CLAY 0.1-0.25 15/3/2024 SE262389.014	BH10 CLAY 0.55-0.65 15/3/2024 SE262389.015
% Moisture	%w/w	1	11.5	12.9	30.3	11.9	17.8

PARAMETER	UOM	LOR	DDS1 SAND - 15/3/2024 SE262389.016
% Moisture	%w/w	1	8.0

VOCs in Water [AN433] Tested: 21/3/2024

PARAMETER	UOM	LOR	RS1 WATER - 15/3/2024 SE262389.017
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene (VOC)*	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 21/3/2024

PARAMETER	UOM	LOR	RS1 WATER - 15/3/2024 SE262389.017
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 21/3/2024

PARAMETER	UOM	LOR	RS1 WATER - 15/3/2024 SE262389.017
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 21/3/2024

PARAMETER	UOM	LOR	RS1 WATER - 15/3/2024 SE262389.017
Naphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Total PAH (18)	µg/L	1	<1

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 19/3/2024

PARAMETER	UOM	LOR	RS1 WATER - 15/3/2024 SE262389.017
Arsenic, As	mg/L	0.02	<0.02
Cadmium, Cd	mg/L	0.001	<0.001
Chromium, Cr	mg/L	0.005	<0.005
Copper, Cu	mg/L	0.005	<0.005
Lead, Pb	mg/L	0.02	<0.02
Nickel, Ni	mg/L	0.005	<0.005
Zinc, Zn	mg/L	0.01	<0.01

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 19/3/2024

PARAMETER	UOM	LOR	RS1 WATER - 15/3/2024 SE262389.017
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by AAS or ICP as per USEPA Method 200.8.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN122	Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pre-treated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.
AN122	The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100. ESP can be used to categorise the sodicity of the soil as below: ESP < 6% non-sodic ESP 6-15% sodic ESP >15% strongly sodic Method is referenced to Rayment and Lyons, 2011, sections 15D3 and 15N1.-
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.

AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken . This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D). Total PAH calculated from individual analyte detections at or above the limit of reporting .
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

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

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

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

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

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

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

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

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

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

STATEMENT OF QA/QC PERFORMANCE

SE262389 R0

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**20499/2 Frenchs Forest**
Order Number	**20499/2**
Samples	18

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE262389 R0**
Date Received	18 Mar 2024
Date Reported	22 Mar 2024

COMMENTS

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

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

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

Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	2 items

SAMPLE SUMMARY

Sample counts by matrix	17 Sand/Clay/Soil, 1	Type of documentation received	COC
Date documentation received	18/3/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.2°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE262389 R0

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

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

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

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH1	SE262389.002	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH2	SE262389.003	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH3	SE262389.004	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH4	SE262389.005	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH4	SE262389.006	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH5	SE262389.007	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH6	SE262389.008	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH7	SE262389.009	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH7	SE262389.010	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH8	SE262389.011	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH8	SE262389.012	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH9	SE262389.013	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH10	SE262389.014	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024
BH10	SE262389.015	LB307448	15 Mar 2024	18 Mar 2024	12 Apr 2024	21 Mar 2024	12 Apr 2024	21 Mar 2024

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE262389.017	LB307149	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	20 Mar 2024

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH1	SE262389.002	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH2	SE262389.003	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH3	SE262389.004	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH4	SE262389.005	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH4	SE262389.006	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH5	SE262389.007	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH6	SE262389.008	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH7	SE262389.009	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH7	SE262389.010	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH8	SE262389.011	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH8	SE262389.012	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH9	SE262389.013	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH10	SE262389.014	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
BH10	SE262389.015	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024
DDS1	SE262389.016	LB307282	15 Mar 2024	18 Mar 2024	12 Apr 2024	19 Mar 2024	12 Apr 2024	21 Mar 2024

Metals in Water (Dissolved) by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE262389.017	LB307186	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	19 Mar 2024

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH1	SE262389.002	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH2	SE262389.003	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH3	SE262389.004	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH4	SE262389.005	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH4	SE262389.006	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH5	SE262389.007	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH6	SE262389.008	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH7	SE262389.009	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH7	SE262389.010	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH8	SE262389.011	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH8	SE262389.012	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH9	SE262389.013	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH10	SE262389.014	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024
BH10	SE262389.015	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024

HOLDING TIME SUMMARY

SE262389 R0

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

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

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

Moisture Content (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
DDS1	SE262389.016	LB307283	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	24 Mar 2024	21 Mar 2024

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH1	SE262389.002	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH2	SE262389.003	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH3	SE262389.004	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.005	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.006	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH5	SE262389.007	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH6	SE262389.008	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.009	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.010	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.011	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.012	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH9	SE262389.013	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.014	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.015	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
DDS1	SE262389.016	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH1	SE262389.002	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH2	SE262389.003	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH3	SE262389.004	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.005	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.006	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH5	SE262389.007	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH6	SE262389.008	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.009	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.010	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.011	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.012	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH9	SE262389.013	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.014	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.015	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
DDS1	SE262389.016	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH1	SE262389.002	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH2	SE262389.003	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH3	SE262389.004	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.005	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.006	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH5	SE262389.007	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH6	SE262389.008	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.009	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.010	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH8	SE262389.011	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.012	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH9	SE262389.013	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.014	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.015	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
DDS1	SE262389.016	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE262389.017	LB307445	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	30 Apr 2024	22 Mar 2024

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH1	SE262389.002	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH2	SE262389.003	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH3	SE262389.004	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.005	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.006	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH5	SE262389.007	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH6	SE262389.008	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.009	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.010	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.011	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.012	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH9	SE262389.013	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.014	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.015	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
DDS1	SE262389.016	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024

pH in soil (1:5)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH1	SE262389.002	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH2	SE262389.003	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH3	SE262389.004	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH4	SE262389.005	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH4	SE262389.006	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH5	SE262389.007	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH6	SE262389.008	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH7	SE262389.009	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH7	SE262389.010	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH8	SE262389.011	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH8	SE262389.012	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH9	SE262389.013	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH10	SE262389.014	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024
BH10	SE262389.015	LB307458	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	22 Mar 2024	21 Mar 2024

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH1	SE262389.002	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH2	SE262389.003	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH3	SE262389.004	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH4	SE262389.005	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH4	SE262389.006	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH5	SE262389.007	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH6	SE262389.008	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH7	SE262389.009	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH7	SE262389.010	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH8	SE262389.011	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH8	SE262389.012	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH9	SE262389.013	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH10	SE262389.014	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
BH10	SE262389.015	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024
DDS1	SE262389.016	LB307280	15 Mar 2024	18 Mar 2024	11 Sep 2024	19 Mar 2024	11 Sep 2024	21 Mar 2024

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE262389 R0

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH1	SE262389.002	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH2	SE262389.003	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH3	SE262389.004	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.005	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH4	SE262389.006	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH5	SE262389.007	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH6	SE262389.008	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.009	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH7	SE262389.010	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH8	SE262389.011	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH8	SE262389.012	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	22 Mar 2024
BH9	SE262389.013	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.014	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
BH10	SE262389.015	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024
DDS1	SE262389.016	LB307276	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	28 Apr 2024	21 Mar 2024

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE262389.017	LB307445	15 Mar 2024	18 Mar 2024	22 Mar 2024	21 Mar 2024	30 Apr 2024	22 Mar 2024

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH2	SE262389.003	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH3	SE262389.004	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH4	SE262389.005	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH5	SE262389.007	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH6	SE262389.008	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH7	SE262389.009	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH8	SE262389.011	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH9	SE262389.013	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH10	SE262389.014	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH10	SE262389.015	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
DDS1	SE262389.016	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
TS1	SE262389.018	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE262389.017	LB307446	15 Mar 2024	18 Mar 2024	29 Mar 2024	21 Mar 2024	29 Mar 2024	22 Mar 2024

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE262389.001	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH2	SE262389.003	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH3	SE262389.004	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH4	SE262389.005	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH5	SE262389.007	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH6	SE262389.008	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH7	SE262389.009	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH8	SE262389.011	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH9	SE262389.013	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH10	SE262389.014	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
BH10	SE262389.015	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
DDS1	SE262389.016	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	21 Mar 2024
TS1	SE262389.018	LB307278	15 Mar 2024	18 Mar 2024	29 Mar 2024	19 Mar 2024	29 Mar 2024	22 Mar 2024

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE262389 R0

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

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

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE262389.017	LB307446	15 Mar 2024	18 Mar 2024	29 Mar 2024	21 Mar 2024	29 Mar 2024	22 Mar 2024

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

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

OC Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1	SE262389.001	%	60 - 130%	100
	BH1	SE262389.002	%	60 - 130%	98
	BH2	SE262389.003	%	60 - 130%	103
	BH3	SE262389.004	%	60 - 130%	103
	BH4	SE262389.005	%	60 - 130%	98
	BH4	SE262389.006	%	60 - 130%	101
	BH5	SE262389.007	%	60 - 130%	100
	BH6	SE262389.008	%	60 - 130%	103
	BH7	SE262389.009	%	60 - 130%	104
	BH7	SE262389.010	%	60 - 130%	96
	BH8	SE262389.011	%	60 - 130%	111
	BH8	SE262389.012	%	60 - 130%	93
	BH9	SE262389.013	%	60 - 130%	101
	BH10	SE262389.014	%	60 - 130%	99
	BH10	SE262389.015	%	60 - 130%	104
	DDS1	SE262389.016	%	60 - 130%	99

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1	SE262389.001	%	60 - 130%	102
	BH1	SE262389.002	%	60 - 130%	111
	BH2	SE262389.003	%	60 - 130%	83
	BH3	SE262389.004	%	60 - 130%	102
	BH4	SE262389.005	%	60 - 130%	106
	BH4	SE262389.006	%	60 - 130%	118
	BH5	SE262389.007	%	60 - 130%	102
	BH6	SE262389.008	%	60 - 130%	101
	BH7	SE262389.009	%	60 - 130%	103
	BH7	SE262389.010	%	60 - 130%	105
	BH8	SE262389.011	%	60 - 130%	101
	BH8	SE262389.012	%	60 - 130%	105
	BH9	SE262389.013	%	60 - 130%	105
	BH10	SE262389.014	%	60 - 130%	97
	BH10	SE262389.015	%	60 - 130%	103
	DDS1	SE262389.016	%	60 - 130%	103
d14-p-terphenyl (Surrogate)	BH1	SE262389.001	%	60 - 130%	103
	BH1	SE262389.002	%	60 - 130%	105
	BH2	SE262389.003	%	60 - 130%	82
	BH3	SE262389.004	%	60 - 130%	104
	BH4	SE262389.005	%	60 - 130%	106
	BH4	SE262389.006	%	60 - 130%	117
	BH5	SE262389.007	%	60 - 130%	101
	BH6	SE262389.008	%	60 - 130%	100
	BH7	SE262389.009	%	60 - 130%	107
	BH7	SE262389.010	%	60 - 130%	104
	BH8	SE262389.011	%	60 - 130%	104
	BH8	SE262389.012	%	60 - 130%	112
	BH9	SE262389.013	%	60 - 130%	96
	BH10	SE262389.014	%	60 - 130%	97
	BH10	SE262389.015	%	60 - 130%	112
	DDS1	SE262389.016	%	60 - 130%	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1	SE262389.001	%	70 - 130%	102
	BH2	SE262389.003	%	70 - 130%	83
	BH3	SE262389.004	%	70 - 130%	102
	BH4	SE262389.005	%	70 - 130%	106
	BH5	SE262389.007	%	70 - 130%	102
	BH6	SE262389.008	%	70 - 130%	101
	BH7	SE262389.009	%	70 - 130%	103
	BH8	SE262389.011	%	70 - 130%	101

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH9	SE262389.013	%	70 - 130%	105
	BH10	SE262389.014	%	70 - 130%	97
	BH10	SE262389.015	%	70 - 130%	103
	DDS1	SE262389.016	%	70 - 130%	103
d14-p-terphenyl (Surrogate)	BH1	SE262389.001	%	70 - 130%	103
	BH2	SE262389.003	%	70 - 130%	82
	BH3	SE262389.004	%	70 - 130%	104
	BH4	SE262389.005	%	70 - 130%	106
	BH5	SE262389.007	%	70 - 130%	101
	BH6	SE262389.008	%	70 - 130%	100
	BH7	SE262389.009	%	70 - 130%	107
	BH8	SE262389.011	%	70 - 130%	104
	BH9	SE262389.013	%	70 - 130%	96
	BH10	SE262389.014	%	70 - 130%	97
	BH10	SE262389.015	%	70 - 130%	112
	DDS1	SE262389.016	%	70 - 130%	104
d5-nitrobenzene (Surrogate)	BH1	SE262389.001	%	70 - 130%	104
	BH2	SE262389.003	%	70 - 130%	87
	BH3	SE262389.004	%	70 - 130%	103
	BH4	SE262389.005	%	70 - 130%	114
	BH5	SE262389.007	%	70 - 130%	102
	BH6	SE262389.008	%	70 - 130%	105
	BH7	SE262389.009	%	70 - 130%	111
	BH8	SE262389.011	%	70 - 130%	107
	BH9	SE262389.013	%	70 - 130%	109
	BH10	SE262389.014	%	70 - 130%	101
	BH10	SE262389.015	%	70 - 130%	106
	DDS1	SE262389.016	%	70 - 130%	108

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RS1	SE262389.017	%	40 - 130%	84
d14-p-terphenyl (Surrogate)	RS1	SE262389.017	%	40 - 130%	76
d5-nitrobenzene (Surrogate)	RS1	SE262389.017	%	40 - 130%	78

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH1	SE262389.001	%	60 - 130%	99
	BH2	SE262389.003	%	60 - 130%	101
	BH3	SE262389.004	%	60 - 130%	101
	BH4	SE262389.005	%	60 - 130%	97
	BH5	SE262389.007	%	60 - 130%	99
	BH6	SE262389.008	%	60 - 130%	102
	BH7	SE262389.009	%	60 - 130%	103
	BH8	SE262389.011	%	60 - 130%	110
	BH9	SE262389.013	%	60 - 130%	100
	BH10	SE262389.014	%	60 - 130%	98
	BH10	SE262389.015	%	60 - 130%	102
	DDS1	SE262389.016	%	60 - 130%	98

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1	SE262389.001	%	60 - 130%	79
	BH2	SE262389.003	%	60 - 130%	76
	BH3	SE262389.004	%	60 - 130%	64
	BH4	SE262389.005	%	60 - 130%	79
	BH5	SE262389.007	%	60 - 130%	80
	BH6	SE262389.008	%	60 - 130%	79
	BH7	SE262389.009	%	60 - 130%	76
	BH8	SE262389.011	%	60 - 130%	78
	BH9	SE262389.013	%	60 - 130%	71
	BH10	SE262389.014	%	60 - 130%	80

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH10	SE262389.015	%	60 - 130%	75
	DDS1	SE262389.016	%	60 - 130%	76
	TS1	SE262389.018	%	60 - 130%	93
d4-1,2-dichloroethane (Surrogate)	BH1	SE262389.001	%	60 - 130%	83
	BH2	SE262389.003	%	60 - 130%	79
	BH3	SE262389.004	%	60 - 130%	97
	BH4	SE262389.005	%	60 - 130%	83
	BH5	SE262389.007	%	60 - 130%	86
	BH6	SE262389.008	%	60 - 130%	85
	BH7	SE262389.009	%	60 - 130%	83
	BH8	SE262389.011	%	60 - 130%	87
	BH9	SE262389.013	%	60 - 130%	79
	BH10	SE262389.014	%	60 - 130%	88
	BH10	SE262389.015	%	60 - 130%	82
	DDS1	SE262389.016	%	60 - 130%	86
	TS1	SE262389.018	%	60 - 130%	88
d8-toluene (Surrogate)	BH1	SE262389.001	%	60 - 130%	89
	BH2	SE262389.003	%	60 - 130%	84
	BH3	SE262389.004	%	60 - 130%	72
	BH4	SE262389.005	%	60 - 130%	89
	BH5	SE262389.007	%	60 - 130%	92
	BH6	SE262389.008	%	60 - 130%	90
	BH7	SE262389.009	%	60 - 130%	89
	BH8	SE262389.011	%	60 - 130%	91
	BH9	SE262389.013	%	60 - 130%	81
	BH10	SE262389.014	%	60 - 130%	92
	BH10	SE262389.015	%	60 - 130%	86
	DDS1	SE262389.016	%	60 - 130%	91
	TS1	SE262389.018	%	60 - 130%	93

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RS1	SE262389.017	%	40 - 130%	95
d4-1,2-dichloroethane (Surrogate)	RS1	SE262389.017	%	40 - 130%	113
d8-toluene (Surrogate)	RS1	SE262389.017	%	40 - 130%	109

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1	SE262389.001	%	60 - 130%	79
	BH2	SE262389.003	%	60 - 130%	76
	BH3	SE262389.004	%	60 - 130%	64
	BH4	SE262389.005	%	60 - 130%	79
	BH5	SE262389.007	%	60 - 130%	80
	BH6	SE262389.008	%	60 - 130%	79
	BH7	SE262389.009	%	60 - 130%	76
	BH8	SE262389.011	%	60 - 130%	78
	BH9	SE262389.013	%	60 - 130%	71
	BH10	SE262389.014	%	60 - 130%	80
	BH10	SE262389.015	%	60 - 130%	75
	DDS1	SE262389.016	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	BH1	SE262389.001	%	60 - 130%	83
	BH2	SE262389.003	%	60 - 130%	79
	BH3	SE262389.004	%	60 - 130%	97
	BH4	SE262389.005	%	60 - 130%	83
	BH5	SE262389.007	%	60 - 130%	86
	BH6	SE262389.008	%	60 - 130%	85
	BH7	SE262389.009	%	60 - 130%	83
	BH8	SE262389.011	%	60 - 130%	87
	BH9	SE262389.013	%	60 - 130%	79
	BH10	SE262389.014	%	60 - 130%	88
	BH10	SE262389.015	%	60 - 130%	82
	DDS1	SE262389.016	%	60 - 130%	86

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH1	SE262389.001	%	60 - 130%	89
	BH2	SE262389.003	%	60 - 130%	84
	BH3	SE262389.004	%	60 - 130%	72
	BH4	SE262389.005	%	60 - 130%	89
	BH5	SE262389.007	%	60 - 130%	92
	BH6	SE262389.008	%	60 - 130%	90
	BH7	SE262389.009	%	60 - 130%	89
	BH8	SE262389.011	%	60 - 130%	91
	BH9	SE262389.013	%	60 - 130%	81
	BH10	SE262389.014	%	60 - 130%	92
	BH10	SE262389.015	%	60 - 130%	86
	DDS1	SE262389.016	%	60 - 130%	91

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RS1	SE262389.017	%	40 - 130%	95
d4-1,2-dichloroethane (Surrogate)	RS1	SE262389.017	%	60 - 130%	113
d8-toluene (Surrogate)	RS1	SE262389.017	%	40 - 130%	109

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

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

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB307149.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB307282.001	Mercury	mg/kg	0.05	<0.05

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result
LB307186.001	Arsenic, As	mg/L	0.02	<0.02
	Cadmium, Cd	mg/L	0.001	<0.001
	Chromium, Cr	mg/L	0.005	<0.005
	Copper, Cu	mg/L	0.005	<0.005
	Lead, Pb	mg/L	0.02	<0.02
	Nickel, Ni	mg/L	0.005	<0.005
	Zinc, Zn	mg/L	0.01	<0.01

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB307276.001		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	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.05	<0.05
		Endrin	mg/kg	0.1	<0.1
		Beta Endosulfan	mg/kg	0.1	<0.1
		p,p'-DDD	mg/kg	0.1	<0.1
		Endrin aldehyde	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endrin ketone	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	99

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB307276.001		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	116
		d14-p-terphenyl (Surrogate)	%	-	104

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

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

Sample Number		Parameter	Units	LOR	Result
LB307276.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(b&j&k)fluoranthene	mg/kg	0.2	<0.2
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	114
		2-fluorobiphenyl (Surrogate)	%	-	116
		d14-p-terphenyl (Surrogate)	%	-	104

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB307445.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	72
		2-fluorobiphenyl (Surrogate)	%	-	73
		d14-p-terphenyl (Surrogate)	%	-	77

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB307276.001		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	<1.0
	Surrogates	TCMX (Surrogate)	%	-	99

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

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

Sample Number	Parameter	Units	LOR

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

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

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

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

Sample Number	Parameter	Units	LOR	Result
LB307280.001	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

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB307276.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB307445.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB307278.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	89
		Bromofluorobenzene (Surrogate)	%	-	82
	Totals	Total BTEX*	mg/kg	0.3	<0.3

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB307446.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)*	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	98

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB307278.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	85

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB307446.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	98

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

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

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

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

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

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.017	LB307149.010	Mercury	µg/L	0.0001	<0.0001	0.0000	200	13

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.010	LB307282.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE262450.001	LB307282.022	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Metals in Water (Dissolved) by ICPOES

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.017	LB307186.013	Arsenic, As	mg/L	0.02	<0.02	<0.02	200	0
		Cadmium, Cd	mg/L	0.001	<0.001	<0.001	200	0
		Chromium, Cr	mg/L	0.005	<0.005	<0.005	200	0
		Copper, Cu	mg/L	0.005	<0.005	<0.005	200	0
		Lead, Pb	mg/L	0.02	<0.02	<0.02	200	0
		Nickel, Ni	mg/L	0.005	<0.005	<0.005	200	0
		Zinc, Zn	mg/L	0.01	<0.01	<0.01	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.010	LB307283.011	% Moisture	%w/w	1	8.5	7.6	42	11
SE262450.001	LB307283.019	% Moisture	%w/w	1	3.4	3.8	58	11

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.010	LB307276.014		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	0.1	<0.1	<0.1	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	0.05	<0.05	<0.05	200	0
			Endrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
			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
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
			Total Other OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.16	30	7
SE262450.001	LB307276.022		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0

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

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

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

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

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

OC Pesticides in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262450.001	LB307276.022		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	0.1	<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	0.05	<0.2	<0.2	200	0
			Endrin	mg/kg	0.1	<0.2	<0.2	200	0
			Beta Endosulfan	mg/kg	0.1	<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
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
			Total Other OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	30	3

OP Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.009	LB307276.024		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	5
SE262450.001	LB307276.022		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR

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

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.009	LB307276.024		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0
			Total PAH (18)	mg/kg	0.1	<0.1	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.56	0.5	30	1
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.51	0.5	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.53	0.5	30	5
SE262450.001	LB307276.022		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0
			Total PAH (18)	mg/kg	0.1	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3

PCBs in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262450.001	LB307276.022	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0

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

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

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

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

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

PCBs in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262450.001	LB307276.022		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	0

pH in soil (1:5)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262127A.005	LB307458.026	pH	pH Units	0.1	9.2	9.3	31	1
SE262389.015	LB307458.025	pH	pH Units	0.1	6.0	5.9	32	2

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.010	LB307280.014	Arsenic, As	mg/kg	1	5	4	51	16
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	25	27	32	7
		Copper, Cu	mg/kg	0.5	<0.5	0.6	155	16
		Nickel, Ni	mg/kg	0.5	<0.5	0.7	115	31
		Lead, Pb	mg/kg	1	12	12	38	5
		Zinc, Zn	mg/kg	2	10	13	47	22
SE262450.001	LB307280.022	Arsenic, As	mg/kg	1	6	5	48	12
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	18	17	33	5
		Copper, Cu	mg/kg	0.5	0.6	<0.5	127	20
		Nickel, Ni	mg/kg	0.5	1.0	0.9	81	8
		Lead, Pb	mg/kg	1	15	14	37	6
		Zinc, Zn	mg/kg	2	14	12	45	12

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.009	LB307276.024		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	67	79	92	16
			TRH C29-C36	mg/kg	45	99	120	71	21
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	170	200	90	19
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	167	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	140	170	89	17
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE262450.001	LB307276.022		TRH C10-C14	mg/kg	20	<20	<20	135	0
			TRH C15-C28	mg/kg	45	79	99	80	22
			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	153	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	27	31	115	15
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	27	31	115	15
			TRH >C16-C34 (F3)	mg/kg	90	<90	93	137	3
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.009	LB307278.021	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	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	-	8.3	8.4	50	1
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.9	50	1

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

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

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

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

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

VOC's in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.009	LB307278.021	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.5	50	1
		Totals	Total BTEX*	mg/kg	0.3	<0.3	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE262450.001	LB307278.019	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	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	-	8.8	9.2	50	4
			d8-toluene (Surrogate)	mg/kg	-	9.6	10.1	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.5	8.9	50	5
		Totals	Total BTEX*	mg/kg	0.3	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262099.003	LB307446.023	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	12	11	30	5
			d8-toluene (Surrogate)	µg/L	-	12	11	30	9
			Bromofluorobenzene (Surrogate)	µg/L	-	10	9.7	30	3
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262389.009	LB307278.021		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.3	8.4	50	1
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.9	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.5	50	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE262450.001	LB307278.019		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	9.2	50	4
			d8-toluene (Surrogate)	mg/kg	-	9.6	10.1	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.5	8.9	50	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262099.003	LB307446.023		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<50	<50	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	0.0	30	5
			d8-toluene (Surrogate)	µg/L	-	0.0	0.0	30	9
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	0.0	30	3
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0
SE262270.001	LB307446.024		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<50	<50	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	0.0	30	12
			d8-toluene (Surrogate)	µg/L	-	0.0	0.0	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	0.0	30	2
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0

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

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

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307282.002	Mercury	mg/kg	0.05	0.23	0.2	80 - 120	115

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307186.002	Arsenic, As	mg/L	0.02	0.50	0.5	80 - 120	100
	Cadmium, Cd	mg/L	0.001	0.46	0.5	80 - 120	92
	Chromium, Cr	mg/L	0.005	0.50	0.5	80 - 120	100
	Copper, Cu	mg/L	0.005	0.50	0.5	80 - 120	99
	Lead, Pb	mg/L	0.02	0.48	0.5	80 - 120	96
	Nickel, Ni	mg/L	0.005	0.48	0.5	80 - 120	95
	Zinc, Zn	mg/L	0.01	0.49	0.5	80 - 120	98

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307276.002		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	87
		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	86
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	89
		Dieldrin	mg/kg	0.05	0.17	0.2	60 - 140	83
		Endrin	mg/kg	0.1	0.2	0.2	60 - 140	79
		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	95

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307276.002		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	88
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	88
		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	73
		Ethion	mg/kg	0.2	1.5	2	60 - 140	75
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307276.002		Naphthalene	mg/kg	0.1	4.7	4	60 - 140	117
		Acenaphthylene	mg/kg	0.1	4.7	4	60 - 140	117
		Acenaphthene	mg/kg	0.1	4.9	4	60 - 140	123
		Phenanthrene	mg/kg	0.1	4.8	4	60 - 140	119
		Anthracene	mg/kg	0.1	5.1	4	60 - 140	129
		Fluoranthene	mg/kg	0.1	4.8	4	60 - 140	121
		Pyrene	mg/kg	0.1	4.9	4	60 - 140	123
		Benzo(a)pyrene	mg/kg	0.1	4.8	4	60 - 140	120
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.50	0.5	40 - 130	100
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.51	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.49	0.5	40 - 130	99

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307445.002		Naphthalene	µg/L	0.1	46	40	60 - 140	114
		Acenaphthylene	µg/L	0.1	38	40	60 - 140	96
		Acenaphthene	µg/L	0.1	48	40	60 - 140	121
		Phenanthrene	µg/L	0.1	36	40	60 - 140	90
		Anthracene	µg/L	0.1	35	40	60 - 140	88
		Fluoranthene	µg/L	0.1	38	40	60 - 140	94
		Pyrene	µg/L	0.1	38	40	60 - 140	95
		Benzo(a)pyrene	µg/L	0.1	52	40	60 - 140	130
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	63
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	69
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	77

PCBs in Soil

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

Sample Number	Parameter	Units	LOR

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

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

PCBs in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307276.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	81

pH in soil (1:5)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307458.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307280.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	100
	Cadmium, Cd	mg/kg	0.3	4.2	4.81	70 - 130	86
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	101
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	103
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	96
	Lead, Pb	mg/kg	1	88	89.9	80 - 120	98
	Zinc, Zn	mg/kg	2	260	273	80 - 120	97

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307276.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	106
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	101
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16	mg/kg	25	42	40	60 - 140	105
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	91
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307445.002		TRH C10-C14	µg/L	50	920	1200	60 - 140	77
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	100
		TRH C29-C36	µg/L	200	1200	1200	60 - 140	103
	TRH F Bands	TRH >C10-C16	µg/L	60	1100	1200	60 - 140	88
		TRH >C16-C34 (F3)	µg/L	500	1200	1200	60 - 140	97
		TRH >C34-C40 (F4)	µg/L	500	700	600	60 - 140	117

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307278.002	Monocyclic	Benzene	mg/kg	0.1	4.7	5	60 - 140	95
	Aromatic	Toluene	mg/kg	0.1	4.8	5	60 - 140	97
		Ethylbenzene	mg/kg	0.1	4.8	5	60 - 140	96
		m/p-xylene	mg/kg	0.2	9.7	10	60 - 140	97
		o-xylene	mg/kg	0.1	4.9	5	60 - 140	98
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.4	10	70 - 130	94
		d8-toluene (Surrogate)	mg/kg	-	10	10	70 - 130	100
		Bromofluorobenzene (Surrogate)	mg/kg	-	10	10	70 - 130	104

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307446.002	Monocyclic	Benzene	µg/L	0.5	54	45.45	60 - 140	119
	Aromatic	Toluene	µg/L	0.5	55	45.45	60 - 140	121
		Ethylbenzene	µg/L	0.5	52	45.45	60 - 140	115
		m/p-xylene	µg/L	1	100	90.9	60 - 140	114
		o-xylene	µg/L	0.5	51	45.45	60 - 140	111
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.9	10	60 - 140	99
		d8-toluene (Surrogate)	µg/L	-	10.6	10	70 - 130	106
		Bromofluorobenzene (Surrogate)	µg/L	-	9.5	10	70 - 130	95

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307278.002		TRH C6-C10	mg/kg	25	71	92.5	60 - 140	76
		TRH C6-C9	mg/kg	20	61	80	60 - 140	77
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.4	10	70 - 130	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	10	10	70 - 130	104
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	42	62.5	60 - 140	66

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307446.002		TRH C6-C10	µg/L	50	790	946.63	60 - 140	84
		TRH C6-C9	µg/L	40	680	818.71	60 - 140	83
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.9	10	60 - 140	99
		d8-toluene (Surrogate)	µg/L	-	10.6	10	70 - 130	106
		Bromofluorobenzene (Surrogate)	µg/L	-	9.5	10	70 - 130	95
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	480	639.67	60 - 140	74

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

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

Mercury (dissolved) in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262307.006	LB307149.004	Mercury	mg/L	0.0001	0.0020	<0.0001	0.008	99

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307282.004	Mercury	mg/kg	0.05	0.22	<0.05	0.2	86

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307276.004		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	92
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	91
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	92
			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	0.1	<0.1	<0.1	-	-
			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	0.05	0.18	<0.05	0.2	88
			Endrin	mg/kg	0.1	0.2	<0.1	0.2	84
			Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
			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	90
			Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
			Total OC VIC EPA	mg/kg	1	1	<1	-	-
			Total Other OC VIC EPA	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	-	99

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307276.004		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	<0.2	2	93
			Diazinon (Dimpylate)	mg/kg	0.5	1.9	<0.5	2	94
			Dichlorvos	mg/kg	0.5	1.9	<0.5	2	94
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.9	<0.2	2	97
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	7.6	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	102
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307276.004		Naphthalene	mg/kg	0.1	4.5	<0.1	4	112
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.6	<0.1	4	115
			Acenaphthene	mg/kg	0.1	4.8	<0.1	4	119
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.7	<0.1	4	118
			Anthracene	mg/kg	0.1	4.7	<0.1	4	117
			Fluoranthene	mg/kg	0.1	4.6	<0.1	4	115
			Pyrene	mg/kg	0.1	4.8	<0.1	4	121
			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(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.6	<0.1	4	114
			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*	mg/kg	0.2	4.6	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	4.6	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	4.7	<0.3	-	-
			Total PAH (18)	mg/kg	0.1	37	<0.1	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.53	0.52	-	106
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.51	0.51	-	102
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.50	0.51	-	100

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307276.004		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	112
			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	<1.0	<1.0	-	-
		Surrogates	TCMX (Surrogate)	mg/kg	-	0.15	0.15	-	98

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%
SE262389.001	LB307280.004	Arsenic, As	mg/kg	1	49	2	50	94
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	86
		Chromium, Cr	mg/kg	0.5	58	13	50	90
		Copper, Cu	mg/kg	0.5	76	27	50	98
		Nickel, Ni	mg/kg	0.5	51	2.1	50	98
		Lead, Pb	mg/kg	1	66	23	50	86
		Zinc, Zn	mg/kg	2	78	32	50	94

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307276.004		TRH C10-C14	mg/kg	20	87	59	40	69
			TRH C15-C28	mg/kg	45	230	160	40	173 ⑤
			TRH C29-C36	mg/kg	45	230	180	40	128
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	550	400	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	460	360	-	-
		TRH F	TRH >C10-C16	mg/kg	25	100	75	40	73
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	100	75	-	-
			TRH >C16-C34 (F3)	mg/kg	90	360	290	40	176 ⑤

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307276.004	TRH F	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%
SE262389.001	LB307278.004	Monocyclic	Benzene	mg/kg	0.1	5.0	<0.1	5	100
		Aromatic	Toluene	mg/kg	0.1	4.9	<0.1	5	98
			Ethylbenzene	mg/kg	0.1	4.7	<0.1	5	94
			m/p-xylene	mg/kg	0.2	9.4	<0.2	10	94
			o-xylene	mg/kg	0.1	4.7	<0.1	5	94
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	8.3	10	82
			d8-toluene (Surrogate)	mg/kg	-	8.7	8.9	10	87
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.6	7.9	10	86
		Totals	Total BTEX*	mg/kg	0.3	29	<0.3	-	-
			Total Xylenes*	mg/kg	0.3	14	<0.3	-	-

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE262098.001	LB307446.025	Monocyclic	Benzene	µg/L	0.5	<0.5	45.45	103
		Aromatic	Toluene	µg/L	0.5	<0.5	45.45	104
			Ethylbenzene	µg/L	0.5	<0.5	45.45	102
			m/p-xylene	µg/L	1	<1	90.9	103
			o-xylene	µg/L	0.5	<0.5	45.45	102
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	12	-	81
			d8-toluene (Surrogate)	µg/L	-	11	-	96
			Bromofluorobenzene (Surrogate)	µg/L	-	9.8	-	100
		Totals	Total BTEX	µg/L	3	<3	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262389.001	LB307278.004		TRH C6-C10	mg/kg	25	91	<25	92.5	96
			TRH C6-C9	mg/kg	20	77	<20	80	94
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	8.3	10	82
			d8-toluene (Surrogate)	mg/kg	-	8.7	8.9	10	87
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.6	7.9	-	86
		VPH F	Benzene (F0)	mg/kg	0.1	5.0	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	62	<25	62.5	96

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE262098.001	LB307446.025		TRH C6-C10	µg/L	50	<50	946.63	94
			TRH C6-C9	µg/L	40	<40	818.71	95
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	12	-	81
			d8-toluene (Surrogate)	µg/L	-	11	-	96
			Bromofluorobenzene (Surrogate)	µg/L	-	9.8	-	100
		VPH F	Benzene (F0)	µg/L	0.5	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	639.67	96

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

GEOTECHNIQUE PTY LTD

1 LEMKO PLACE PENRITH NSW 2750

CHAIN OF CUSTODY

Results Required By: Normal Turnaround 4 days **Date:** Friday, 22 March 2024

Except pH Results Required By - **Date:**

Your Reference No.: [redacted]

TO: SGS
UNIT 16, 33 MADDOX STREET
ALEXANDRIA NSW 2015

Sampled By: JH Ref No: 20499/2 Project Manager: ANWAR BARBHUYIA

Location: Frenchs Forest

	Location	Depth (m)	Date	Soil	Water	Material	Metals As Cd Cr Cu Pb Hg Ni Zn	pH	CEC	CL8 TRH BTEX PAH	CL10 Metals* TRH BTEX PAH	CL16 Metals* TRH BTEX PAH OC PCB	Be B Co Mn Se	Mn	BTEX	TRH & BTEX	PAH	OCP	PCB	OCP & PCB	OPP	OCP,OPP & PCB	Cyanide	VOC	Phenol	PFAS	TCLP PAH	TCLP	Metals (Retest)
1	BH1	0.0-0.15	15/03/2024	G		Sand		✔	✔			✔									✔								
2	BH1	0.25-0.35	15/03/2024	G		Clay	✔	✔	✔									✔			✔								
3	BH2	0.0-0.15	15/03/2024	G		Clay		✔	✔			✔									✔								
4	BH3	0.0-0.15	15/03/2024	G		Clay		✔	✔			✔									✔								
5	BH4	0.0-0.15	15/03/2024	G		Clay		✔	✔			✔									✔								
6	BH4	0.45-0.55	15/03/2024	G		Clay	✔	✔	✔									✔			✔								
7	BH5	0.0-0.15	15/03/2024	G		Clay		✔	✔			✔									✔								
8	BH6	0.0-0.15	15/03/2024	G		Sand		✔	✔			✔									✔								
9	BH7	0.1-0.25	15/03/2024	G		Clay		✔	✔			✔									✔								
10	BH7	0.55-0.65	15/03/2024	G		Clay	✔	✔	✔									✔			✔								
11	BH8	0.05-0.2	15/03/2024	G		Clay		✔	✔			✔									✔								
12	BH8	0.35-0.45	15/03/2024	G		Clay	✔	✔	✔									✔			✔								
13	BH9	0.1-0.25	15/03/2024	G		Clay		✔	✔			✔									✔								
14	BH10	0.1-0.25	15/03/2024	G		Clay		✔	✔			✔									✔								
15	BH10	0.55-0.65	15/03/2024	G		Clay		✔	✔			✔									✔								
	FCP1	0.0-0.1	15/03/2024	G		Clay																							
16	DDS1		15/03/2024	G		Sand						✔									✔								
17	RS1		15/03/2024		-						✔																		
18	TS1		15/03/2024	-											✔														

SGS EHS Sydney COC
SE262389

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	A.B	18/03/2024	Suba	B. Subaray	18/03/24 @ 2:10

WG: Water sample (glass bottle) G Soil sample (glass jar) FCP Fibro Cement Piece (plastic bag)
WP: Water sample (plastic bottle) P Soil sample (plastic bag) ✔ Test required

SAMPLE RECEIPT ADVICE

SE262389

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**20499/2 Frenchs Forest**
Order Number	**20499/2**
Samples	18

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 18/3/2024
Report Due	Fri 22/3/2024
SGS Reference	**SE262389**

SUBMISSION DETAILS

This is to confirm that 18 samples were received on Monday 18/3/2024. Results are expected to be ready by COB Friday 22/3/2024. Please quote SGS reference SE262389 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	17 Sand/Clay/Soil, 1 Water	Type of documentation received	COC
Date documentation received	18/3/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.2°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

COMMENTS

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

SAMPLE RECEIPT ADVICE

SE262389

CLIENT DETAILS

Client Geotechnique

Project 20499/2 Frenchs Forest

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	pH in soil (1:5)	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1 0.0-0.15	30	14	27	11	1	10	11	7
002	BH1 0.25-0.35	30	14	-	-	1	-	-	-
003	BH2 0.0-0.15	30	14	27	11	1	10	11	7
004	BH3 0.0-0.15	30	14	27	11	1	10	11	7
005	BH4 0.0-0.15	30	14	27	11	1	10	11	7
006	BH4 0.45-0.55	30	14	-	-	1	-	-	-
007	BH5 0.0-0.15	30	14	27	11	1	10	11	7
008	BH6 0.0-0.15	30	14	27	11	1	10	11	7
009	BH7 0.1-0.25	30	14	27	11	1	10	11	7
010	BH7 0.55-0.65	30	14	-	-	1	-	-	-
011	BH8 0.05-0.2	30	14	27	11	1	10	11	7
012	BH8 0.35-0.45	30	14	-	-	1	-	-	-
013	BH9 0.1-0.25	30	14	27	11	1	10	11	7
014	BH10 0.1-0.25	30	14	27	11	1	10	11	7
015	BH10 0.55-0.65	30	14	27	11	1	10	11	7
016	DDS1	30	14	27	11	-	10	11	7
018	TS1	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE262389

CLIENT DETAILS

Client Geotechnique

Project 20499/2 Frenchs Forest

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	Mercury in Soil	Moisture Content	Total Recoverable Elements in Soil/Waste	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH1 0.0-0.15	9	1	1	7	-	-
002	BH1 0.25-0.35	9	1	1	7	-	-
003	BH2 0.0-0.15	9	1	1	7	-	-
004	BH3 0.0-0.15	9	1	1	7	-	-
005	BH4 0.0-0.15	9	1	1	7	-	-
006	BH4 0.45-0.55	9	1	1	7	-	-
007	BH5 0.0-0.15	9	1	1	7	-	-
008	BH6 0.0-0.15	9	1	1	7	-	-
009	BH7 0.1-0.25	9	1	1	7	-	-
010	BH7 0.55-0.65	9	1	1	7	-	-
011	BH8 0.05-0.2	9	1	1	7	-	-
012	BH8 0.35-0.45	9	1	1	7	-	-
013	BH9 0.1-0.25	9	1	1	7	-	-
014	BH10 0.1-0.25	9	1	1	7	-	-
015	BH10 0.55-0.65	9	1	1	7	-	-
016	DDS1	-	1	1	7	-	-
017	RS1	-	-	-	-	11	7

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE262389

CLIENT DETAILS

Client Geotechnique

Project 20499/2 Frenchs Forest

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	PAH (Polynuclear Aromatic Hydrocarbons) in Water	TRH (Total Recoverable Hydrocarbons) in Water
017	RS1	1	7	22	9

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

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET116700 / 119880 / 1 – 11
Your ref : 20499/2 – Lot 1 DP1298188 & Lot 1 DP524083 – 49 Blackbutts Road and 21A Warili Road, Frenchs Forest
NATA Accreditation No: 14484

22 March 2024

Geotechnique Pty Ltd
1 Lemko Place
Penrith NSW 2750

Accredited for compliance with ISO/IEC 17025 - Testing.

Attn: Mr Anwar Barbhuyia

Dear Anwar

Asbestos Identification
This report presents the results of eleven samples, forwarded by Geotechnique Pty Ltd on 21 March 2024, for analysis for asbestos.

1.Introduction: Eleven samples forwarded were examined and analysed for the presence of asbestos.

2. Methods: The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS 4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

The report also provides approximate weights and percentages, categories of asbestos forms appearing in the sample, such as **AF** (Asbestos Fines), **FA** (Friable Asbestos) and **ACM** (Asbestos Containing Material), also satisfying the requirements of the NEPM Guidelines.

3. Results :

Sample No. 1. ASET116700 / 119880 / 1. BH1 – 0.0 – 0.15
Approx dimensions 10.0 cm x 10.0 cm x 6.8 cm
Approximate total dry weight of soil = 820.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, woodchips, plant matter and organic fibres.
No asbestos detected.

Sample No. 2. ASET116700 / 119880 / 2. BH2 – 0.0 – 0.15
Approx dimensions 10.0 cm x 10.0 cm x 6.6 cm
Approximate total dry weight of soil = 780.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, woodchips, plant matter and organic fibres.
No asbestos detected.

Sample No. 3. ASET116700 / 119880 / 3. BH4 – 0.0 – 0.15
Approx dimensions 10.0 cm x 10.0 cm x 6.7 cm
Approximate total dry weight of soil = 804.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter, animal matter and organic fibres.
No asbestos detected.

Sample No. 4. ASET116700 / 119880 / 4. BH5 – 0.0 – 0.15
Approx dimensions 10.0 cm x 10.0 cm x 6.6 cm
Approximate total dry weight of soil = 778.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, brick-like pieces, woodchips, plant matter, animal matter and organic fibres.
No asbestos detected.

Sample No. 5. ASET116700 / 119880 / 5. BH6 – 0.0 – 0.15
Approx dimensions 10.0 cm x 10.0 cm x 6.7 cm
Approximate total dry weight of soil = 809.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter, animal matter and organic fibres.
No asbestos detected.

Sample No. 6. ASET116700 / 119880 / 6. BH7 – 0.1 – 0.25
Approx dimensions 10.0 cm x 10.0 cm x 6.8 cm
Approximate total dry weight of soil = 811.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.
No asbestos detected.

Sample No. 7. ASET116700 / 119880 / 7. BH8 – 0.05 - 0.2
Approx dimensions 10.0 cm x 10.0 cm x 7.2 cm
Approximate total dry weight of soil = 456 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, brick-like pieces, a piece of glass, plant matter and organic fibres.
No asbestos detected.

Sample No. 8. ASET116700 / 119880 / 8. BH9 – 0.1 – 0.25
Approx dimensions 10.0 cm x 10.0 cm x 8.3 cm
Approximate total dry weight of soil = 992.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.
No asbestos detected.

Sample No. 9. ASET116700 / 119880 / 9. BH10 – 0.1 – 0.25
Approx dimensions 10.0 cm x 10.0 cm x 7.5 cm
Approximate total dry weight of soil = 989.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter, animal matter and organic fibres.
No asbestos detected.

Sample No. 10. ASET116700 / 119880 / 10. FCP1 - 0.0 - 0.1.
Approx dimensions 10.0 cm x 10.0 cm x 7.1 cm
Approximate total dry weight of soil = 852.0 g.
The sample consisted of a mixture of sandy soil, stone, sandstone, woodchips, plant matter, animal matter and organic fibres.
No asbestos detected.

λ Sample No. 11. ASET116700 / 119880 / 11. FCP1 - Surface.
Approx dimensions 4.0 cm x 2.5 cm x 0.5 cm
The sample consisted of a fragment of a plaster cement material.
No asbestos detected.

Reported by,

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signatory

Accredited for compliance with ISO/IEC 17025 - Testing.

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service.

Disclaimers;

The approx; weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/ or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported. This weight disclaimer also covers weight / weight percentages if given.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.

FA -Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.

^ denotes loose fibres of relevant asbestos types detected in soil/dust.
*** denotes asbestos detected in ACM in bonded form.**
 # denotes friable asbestos as soft fibro plaster, fragments of ACM smaller than 7mm which are considered as friable and / or highly weathered ACM that will easily crumble.
λ denotes samples that have been analysed only in accordance to AS 4964 – 2004.
Ω Sample volume criteria of 500mL have not been satisfied.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating

"No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by A4964-2004. Trace / respirable level asbestos will be reported only when detected and trace analysis have been performed on each sample as required by AS4964-2004. When loose asbestos fibres/ fibre bundles are detected and reported that means they are larger handpicked fibres/ fibre bundles, and they do not represent respirable fibres. Dust/soil samples are always subjected to trace analysis except where the amounts involved are extremely minute and trace analysis is not possible to be carried out. When trace analysis is not performed on dust samples it will be indicated in the report that trace analysis has not been carried out due to the volume of the sample being extremely minute.

Estimation of asbestos weights involves the use of following assumptions;
Volume of each kind of Asbestos present in broken edges have been visually estimated and its been assumed that volumes remain similar throughout the binding matrix and those volumes are only approximate and not exact. Material densities have been assumed to be similar to commonly found similar materials and may not be exact.

All samples indicating "No asbestos detected" are assumed to be less than 0.001% for friable AF and FA portions detected and 0.01 % for ACM detected unless the approximate weight is given.

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD
SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635
PHONE: (02) 99872183 FAX: (02)99872151 EMAIL: info@ausset.com.au

CHAIN OF CUSTODY RECORD

ASET JOB NO: ASETIC700/119880/1-11				Ccntact Name:	ANWAR BARBHUYIA	Asbestos in Material	Asbestos in Soil (+/-)	Asbestos WA/ NEPM 500mL	Asbestos Fibre Count	Asbestos in Water	Asbestos in Dust	Lead Analysis
Name/ Company Name: Geotechnique				Job No:	20499/2							
Address: 1 Lemko Place Penrith				Project Address:	Lot 1 DP1298188 & Lot 1 DP524083 - 49 Blackbutts Road and 21A Warili Road, Frenchs Forest							
				Purchase Order:								
Contact Ph: 0247222700				Email Results to:								
	Sample ID	Date	Type	Container	Sample Depth (m)							
1	BH1	15/03/2024	Soil	P	0.0-0.15			√				
2	BH2	15/03/2024	Soil	P	0.0-0.15			√				
3	BH4	15/03/2024	Soil	P	0.0-0.15			√				
4	BH5	15/03/2024	Soil	P	0.0-0.15			√				
5	BH6	15/03/2024	Soil	P	0.0-0.15			√				
6	BH7	15/03/2024	Soil	P	0.1-0.25			√				
7	BH8	15/03/2024	Soil	P	0.05-0.2			√				
8	BH9	15/03/2024	Soil	P	0.1-0.25			√				
9	BH10	15/03/2024	Soil	P	0.1-0.25			√				
10	FCP1	15/03/2024	Soil	P	0.0-0.1			√				

RECEIVED
21 MAR 2024
BY: KD

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD
SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635
PHONE: (02) 99872183 FAX: (02)99872151 EMAIL: info@ausset.com.au

CHAIN OF CUSTODY RECORD

ASET JOB NO:				Contact Name:	ANWAR BARBHUYIA	Asbestos in Material	Asbestos in Soil (+/-)	Asbestos WA/ NEPM 500mL	Asbestos Fibre Count	Asbestos in Water	Asbestos in Dust	Lead Analysis
Name/ Company Name: Geotechnique				Job No:	20499/2							
Address: 1 Lemko Place Penrith				Project Address:	Lot 1 DP1298188 & Lot 1 DP524083 - 49 Blackbutts Road and 21A Warili Road, Frenchs Forest							
				Purchase Order:								
Contact Ph: 0247222700				Email Results to:								
	Sample ID	Date	Type	Container	Sample Depth (m)							
11	FCP1	15/03/2024	Material	P	Surface	√						
Relinquished By:		ANWAR BARBHUYIA			Received By: ANJALKA	Turn around time					Shipment Method	
Date & Time:		18/03/2024			Date & Time: 12.10	Same Day	24 hrs	48 hrs	3 Days	5 days		
Signature: A.B					Signature:					√		

RECEIVED
21 MAR 2024
BY: AD

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

CERTIFICATE OF ANALYSIS 346770

Client Details

Client	Geotechnique Pty Ltd
Attention	Anwar Barbhuyia
Address	PO Box 880, Penrith, NSW, 2751

Sample Details

Your Reference	**20499/2, Frenchs Forest**
Number of Samples	1 Soil, 1 Core
Date samples received	18/03/2024
Date completed instructions received	18/03/2024

Analysis Details

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

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

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

Report Details

Date results requested by	25/03/2024
Date of Issue	21/03/2024

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

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

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date extracted	-	19/03/2024
Date analysed	-	20/03/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	95

svTRH (C10-C40) in Soil		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date extracted	-	19/03/2024
Date analysed	-	19/03/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	130
Total +ve TRH (C10-C36)	mg/kg	130
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	160
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	160
Surrogate o-Terphenyl	%	70

PAHs in Soil		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date extracted	-	19/03/2024
Date analysed	-	19/03/2024
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	%	84

Organochlorine Pesticides in soil		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date extracted	-	19/03/2024
Date analysed	-	19/03/2024
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Mirex	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	78

Organophosphorus Pesticides in Soil		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date extracted	-	19/03/2024
Date analysed	-	19/03/2024
Dichlorvos	mg/kg	<0.1
Mevinphos	mg/kg	<0.1
Phorate	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Disulfoton	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Parathion-Methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenthion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Methidathion	mg/kg	<0.1
Fenamiphos	mg/kg	<0.1
Ethion	mg/kg	<0.1
Phosalone	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Coumaphos	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	78

PCBs in Soil		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date extracted	-	19/03/2024
Date analysed	-	19/03/2024
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate 2-Fluorobiphenyl	%	86

Acid Extractable metals in soil		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date prepared	-	20/03/2024
Date analysed	-	20/03/2024
Arsenic	mg/kg	8
Cadmium	mg/kg	<0.4
Chromium	mg/kg	45
Copper	mg/kg	1
Lead	mg/kg	17
Mercury	mg/kg	<0.1
Nickel	mg/kg	1
Zinc	mg/kg	16

Moisture		
Our Reference		346770-1
Your Reference	UNITS	DSS1
Depth		-
Date Sampled		15/03/2024
Type of sample		Soil
Date prepared	-	19/03/2024
Date analysed	-	20/03/2024
Moisture	%	18

Coal Tar		
Our Reference		346770-2
Your Reference	UNITS	BH10
Depth		0.0-0.1
Date Sampled		15/03/2024
Type of sample		Core
Date prepared	-	19/03/2024
Date analysed	-	19/03/2024
Presence of Coal Tar*	-	Absent

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-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
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.
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.
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Date analysed	-			20/03/2024	[NT]	[NT]	[NT]	[NT]	20/03/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	112	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	119	[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]	100	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Date analysed	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	70	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Date analysed	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[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]	84	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[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]	92	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[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]	78	[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]	94	[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	87	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Date analysed	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	126	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	126	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	136	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	136	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	81	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Date analysed	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	126	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Fenthion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Phosalone	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	81	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Date analysed	-			19/03/2024	[NT]	[NT]	[NT]	[NT]	19/03/2024	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	89	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			20/03/2024	[NT]	[NT]	[NT]	[NT]	20/03/2024	[NT]
Date analysed	-			20/03/2024	[NT]	[NT]	[NT]	[NT]	20/03/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	111	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	113	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[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.

COC 18/3/24, 1042

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

Job No: 346770

Date Received: 18/3/24
Time Received: 1525
Received By: ST
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

GEOTECHNIQUE PTY LTD

1 LEMKO PLACE PENRITH NSW 2750

CHAIN OF CUSTODY

Results Required By: Normal Turnaround **Date:** **Monday, 25 March 2024**
Except pH Results Required By [redacted] **Date:**
Your Reference No.:

TO: ENVIROLAB SERVICES PTY LTD
12 ASHLEY STREET
CHATSWOOD NSW 2067

Sampled By: JH
Project Manager: ANWAR BARBHUYIA

Ref No: 20499/2
Location: Frenchs Forest

	Location	Depth (m)	Date	Soil	Material	Metals As Cd Cr Cu Pb Hg Ni Zn	TRH & BTEX	PAH	OCP	OP	PCB	PHENOL	CYANIDE	COMBO NO	PFAS (extended)	TCLP PFAS (water–routine level, short) (PFOS+PFHxS, PFOA)	COAL TAR (RTA Test Method T542)2
1	DSS1		15/03/2024	G		✓	✓	✓	✓	✓	✓			6			
2	BH10	0.0-0.1	15/03/2024		P												✓

Relinquished by			Received by			
Name	Signature	Date	Name	Signature	Date	
ANWAR BARBHUYIA	A.B	18/03/2024	Shann Tok	ST	18/3/24	

G Soil sample (glass jar) FCP Fibro Cement Piece (plastic bag) PFASC PFAS Container *: As,Cd,Cr,Cu,Pb,Hg,Ni & Zn (8 metals)
P Bitumen sample (plastic bag) ✓ Test required

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Geotechnique Pty Ltd
Attention	Anwar Barbhuyia

Sample Login Details

Your reference	20499/2, Frenchs Forest
Envirolab Reference	346770
Date Sample Received	18/03/2024
Date Instructions Received	18/03/2024
Date Results Expected to be Reported	25/03/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Soil, 1 Core
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	5
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Coal Tar
DSS1	✓	✓	✓	✓	✓	✓	✓	
BH10-0.0-0.1								✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

APPENDIX C

UNEXPECTED FINDS MANAGEMENT PROTOCOL

GEOTECHNIQUE® PTY LTD

ABN 64 002 841 063

UNEXPECTED FINDS MANAGEMENT PROTOCOL

LOT 1 DP1298188, & LOT 1 DP524083
49 BLACKBUTTS ROAD AND
21A WARILI ROAD, FRENCHS FOREST

In the event that unexpected finds and/or suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheeting/pieces/pipes, ash material, imported fill, etc.) are encountered during future earthworks/site preparation or in between sampling locations, the following actions are to be undertaken.

Management of unexpected finds and/or suspect materials
If unexpected finds and/or suspect materials are encountered:

- Works are to be ceased.
- An environmental consultant is to be engaged to take appropriate sampling and testing of contaminants of potential concern at a nominated rate in accordance with current NSW EPA guidelines.
- If contamination is identified, the contaminated materials must be disposed of at an EPA licensed landfill facility with an appropriate waste classification.

Management of bonded asbestos containing material (ACM)
If ACM is encountered, the following measures are to be implemented:

- Engage a Class B licensed bonded asbestos contractor.
- Removal of the asbestos waste must be carried out in accordance with the requirements of the regulators, such as SafeWork NSW and NSW EPA.
- Competent personnel or a SafeWork NSW Licensed Asbestos Assessor or a Professional Hygienist should be engaged to provide a clearance certificate.

Management of friable asbestos within the soil
It is recommended that the following measures are implemented if friable asbestos is encountered:

- Engage a Class A licensed contractor for friable asbestos
- Removal of the asbestos waste must be carried out in accordance with the requirements of the regulators, such as SafeWork NSW and NSW EPA
- A SafeWork NSW Licensed Asbestos Assessor or a Professional Hygienist must be engaged to provide a clearance certificate

Lemko Place, Penrith NSW 2750 PO Box 880, Penrith NSW 2751
Telephone (02) 4722 2700
E-mail: info@geotech.com.au www.geotech.com.au

APPENDIX D

ENVIRONMENTAL NOTES

IMPORTANT INFORMATION REGARDING YOUR ENVIRONMENTAL SITE ASSESSMENT

These notes have been prepared by Geotechnique Pty Ltd, using guidelines prepared by the ASFE (Associated Soil and Foundation Engineers). The notes are offered to assist in the interpretation of your environmental site assessment report.

REASONS FOR AN ENVIRONMENTAL ASSESSMENT

Environmental site assessments are typically, though not exclusively, performed in the following circumstances:

- As a pre-acquisition assessment on behalf of either a purchaser or a vendor, when a property is to be sold
- As a pre-development assessment, when a property or area of land is to be redeveloped, or the land use has changed e.g. from a factory to a residential subdivision
- As a pre-development assessment of greenfield sites, to establish baseline conditions and assess environmental, geological and hydrological constraints to the development of e.g. a landfill
- As an audit of the environmental effects of previous and present site usage

Each circumstance requires a specific approach to the assessment of soil and groundwater contamination. In all cases the objective is to identify and if possible quantify the risks that unrecognised contamination poses to the ongoing proposed activity. Such risks may be both financial (clean-up costs or limitations in site use) and physical (health risks to site users or the public).

ENVIRONMENTAL SITE ASSESSMENT LIMITATIONS

Although information provided by an environmental site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination within a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which did not show signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant that may occur; only the most likely contaminants are screened.

AN ENVIRONMENTAL SITE ASSESSMENT REPORT IS BASED ON A UNIQUE SET OF PROJECT SPECIFIC FACTORS

In the following events and in order to avoid cost problems, you should ask your consultant to assess any changes in the conclusion and recommendations made in the assessment:

- When the nature of the proposed development is changed e.g. if a residential development is proposed, rather than a commercial development
- When the size or configuration of the proposed development is altered e.g. if a basement is added
- When the location or orientation of the proposed structure is modified
- When there is a change of land ownership, or
- For application to an adjacent site

ENVIRONMENTAL SITE ASSESSMENT FINDINGS ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual sub-surface conditions only at those points where samples are taken, when they are taken. Data obtained from the sampling and subsequent laboratory analyses are interpreted by geologists, engineers or scientists and opinions are drawn about the overall sub-surface conditions, the nature and extent of contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional, no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, however, steps can be taken to help minimise the impact. For this reason site owners should retain the services of their consultants throughout the development stages of the project in order to identify variances, conduct additional tests that may be necessary and to recommend solutions to problems encountered on site.

Soil and groundwater contamination is a field in which legislation and interpretation of legislation by government departments is changing rapidly. Whilst every attempt is made by Geotechnique Pty Ltd to be familiar with current policy, our interpretation of the investigation findings should not be taken to be that of the relevant authority. When approval from a statutory authority is required for a project, approval should be directly sought.

STABILITY OF SUB-SURFACE CONDITIONS

Sub-surface conditions can change by natural processes and site activities. As an environmental site assessment is based on conditions existing at the time of the investigation, project decisions should not be based on environmental site assessment data that may have been affected by time. The consultant should be requested to advise if additional tests are required.

ENVIRONMENTAL SITE ASSESSMENTS ARE PERFORMED FOR SPECIFIC PURPOSES AND CLIENTS

Environmental site assessments are prepared in response to a specific scope of work required to meet the specific needs of specific individuals e.g. an assessment prepared for a consulting civil engineer may not be adequate to a construction contractor or another consulting civil engineer.

An assessment should not be used by other persons for any purpose or by the client for a different purpose. No individual, other than the client, should apply an assessment, even for its intended purpose, without first conferring with the consultant. No person should apply an assessment for any purpose other than that originally contemplated, without first conferring with the consultant.

MISINTERPRETATION OF ENVIRONMENTAL SITE ASSESSMENTS

Costly problems can occur when design professionals develop plans based on misinterpretation of an environmental site assessment. In order to minimise problems, the environmental consultant should be retained to work with appropriate design professionals, to explain relevant findings and to review the adequacy of plans and specifications relative to contamination issues.

LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists, based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these would not be redrawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however, contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. Should this occur, delays and disputes, or unanticipated costs may result.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of sub-surface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations, such as contractors.

READ RESPONSIBILITY CLAUSES CLOSELY

An environmental site assessment is based extensively on judgement and opinion; therefore, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. In order to aid in prevention of this problem, model clauses have been developed for use in written transmittals. These are definitive clauses, designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment and you are encouraged to read them closely. Your consultant will be happy to give full and frank answers to any questions you may have.